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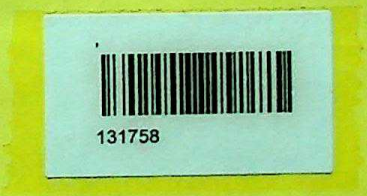

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INDIAN BIRDS

Vol. 5 No. 1

Indian aerodromes
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Aims & Objectives

blish a newsletter that will provide a m to birdwatchers for publishing notes and vations primarily on birds of South Asia.

mote awareness of birdwatching amongst the l public.

ablish and maintain links/liaison with other tions or organized bodies in India or abroad bjectives are in keeping with the objectives Trust (i.e. to support amateur birdwatchers sh / kind for projects in ornithology).

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Front cover: Male Indian Bustard *Ardeotis nigriceps* Greater Rann of Kutch, Gujarat , 22nd March 2008, with Maulik Suthar & Jugal Tiwari.

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Management of Greater Short-toed Larks *Calandrella brachydactyla* in Indian aerodromes

S. S. Mahesh

Mahesh, S. S. 2009. Management of Greater Short-toed Larks *Calandrella brachydactyla* in Indian aerodromes. *Indian Birds* 5 (1): 2–6.
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Abstract

Aerodromes provide vast, relatively undisturbed, short-grass habitat along the runways and taxi track shoulders. These areas, kept free from overgrowing grass and other vegetation for unhindered and safe operations of aircraft, attract Greater Short-toed Larks Calandrella brachydactyla during their winter migration in India. Shrinking grassland cover outside the airports increases the 'menace' of larks at airfields with aircraft sometimes colliding with flocks of Short-toed Larks during take-off or landing, leading to engine damage. Ecological preferences of larks were studied at six IAF airfields to identify management strategies to reduce economic losses.

Introduction

All over India, civil aerodromes and defence airfields constitute relatively undisturbed grassland with no grazing pressures or human interference. Most aerodromes manage the grassland habitat close to runways and taxi tracks where airfield lighting can be obstructed by tall vegetation. Typically a grass height of 15–20 cm is maintained irrespective of the actual requirements. This also helps aerodromes appear tidy and enables easy visual inspection. Planting of '*dhub*' or Bermuda grass *Cynodon dactylon* was recommended by the BNHS in reports (1982–1988)[1] to reduce the attraction of birds to grassland habitat of aerodromes. This recommendation has not been followed and most Indian aerodromes today have multiple species of grass growing on the runway shoulders. Mowing of grass is constrained due to lack of serviceable equipment and the rapid growth of vegetation during the rains. Grass seeds are set periodically and shed or dispersed by wind, attracting Greater Short-toed Larks *Calandrella brachydactyla*.

Strikes by small birds

The instances of strikes to aircraft by small birds have increased in IAF from a mere 5% in 1995 to over 30% in recent years[2]. Due to this, the number of engine withdrawal cases has increased. Though small birds do not result in severe damage to the airframe, they do cause nicks and bends in the turbo-engine blades. Lack of spare engines and the turnaround time for making damaged engines airworthy is very important. This hampers training and the combat worthiness of aircraft, e.g., flying could not be undertaken for about a week at Bidar during the migration period of larks and swallows (October) forcing a change in the training schedule.

Greater Short-toed Larks are a common 'problem species' at north-western and central Indian airfields during winter[3]. In 2003, at IAF Bidar, 40 larks got ingested into a Kiran aircraft's engine. That year, in the same month, Bidar had 14 strikes in a row due to larks. Their population reached problematic levels during February 2008 at Bidar. Large numbers were seen at this airfield and they flew in thick flocks of up to 700 individuals. Sunrise to sunset observations over two days revealed a mean flock size of 66 birds[4] (50 observations, N=3,297). Small numbers (12) of Short-toed Larks were also recorded in Hakimpet airfield (21st February 2008) in the scrub interspersed with grassland areas.

On 21st October 2008, the situation at Bidar airfield was aggravated by a sudden, heavy influx of Greater Short-toed Larks. The migratory aggregations persisted for seven days. During this period the larks basked and fed on runway surfaces, taxi tracks, shoulders, and short grass and sparsely grown long grass areas leaving no areas of the airfield unoccupied (Figs. 1a, b). Their population dropped after 28th October 2008. The mean flock size based on two days of sunrise to sunset observations in November 2008 was 143 birds (179 observations, N=25,586)[5]. The largest flock had more than 1,500 birds actively flying at 1639 hrs on 16th November 2008.

These observations provide information on the increasing presence and hence, 'menace,' of Greater Short-toed Larks at southern aerodromes. In this paper, reasons for the attraction of Greater Short-toed Larks to aerodromes, a case study in Bidar airfield, and management modules are discussed.

Reasons for attraction to aerodromes

Eight airfields, namely, Bidar (Karnataka), Hakimpet (Andhra Pradesh), Naliya, Bhuj, Jamnagar (Gujarat), Utarlai, Nal (Rajasthan) and Gwalior (Madhya Pradesh) were studied to identify the reasons for attracting Short-toed Larks. The following observations were made:

1. Maintaining short grass (4–20 cm) in the manoeuvring area (Bidar, Jamnagar, Bhuj, Gwalior, Naliya).
2. Sparse stands of tall grass (>21 cm) with debris in the manoeuvring area (Bidar).
3. Allowing the grass to flower and seed in the rainy season (all airfields).
4. Pulverisation of grass stands in winter due to plying of vehicles on shoulders resulting in de-husking of seeds (Bhuj, Naliya).

[1] Comprehensive studies of Indian aerodromes BNHS (1982–1988).
[2] Bird strike Database (including BNHS data) of IAF airfields at Directorate of Flight Safety, Air HQ, New Delhi.
[3] Bird Database of IAF airfields at Directorate of Flight Safety, Air HQ, New Delhi.
[4] Time series data collected by Ornithology Cell, Directorate of Flight Safety at Bidar, Feb 2008.
[5] Airfield Studies: Bidar airfield, Ornithology Cell, Directorate of Flight Safety, Air HQ, New Delhi-66.

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Fig. 1a. Greater Short-toed Larks *Calandrella brachydactyla* in Bidar airfield, 21–28 October 2008, flying in dense flocks.

5. Accidental fires (Goose-neck lamps, Very cartridge firing, *etc.*) and burning off grass in winter (Naliya).
6. Existence of bare patches in the grass cover (Utarlai, Bidar, Bhuj, Naliya).
7. Presence of agricultural fields in the surroundings and coincidence of harvesting season (Nal).
8. Presence of grassland contiguous with airfield (Bidar, Utarlai, Naliya).
9. Habitat management like cutting trees and increasing grass cover.
10. Absence or persecution of natural predators like harriers *Circus* spp.
11. Assured water supply in the vicinity of airfields (Utarlai, Bidar, and Naliya). Such places are preferred for roosting.

Fig. 1b Greater Short-toed Larks *Calandrella brachydactyla* in sitting on asphalt surfaces at Bidar airfield, 21–28 October 2008.

Case study: Bidar airfield

IAF Bidar was studied over two winters for problematic birds. A detailed report has been submitted to Directorate of Flight Safety, Air HQ, New Delhi, on comprehensive management measures to reduce problem of bird hits[5]. Here, a part of the original report is presented on understanding aerodrome usage patterns of Greater Short-toed Larks and measures to curb the 'menace'. This being a species-specific design, the modules concerning larks are discussed in detail.

Methods

Airfield habitat usage pattern of Greater Short-toed Larks was studied at IAF Bidar for five days in February 2008 and for 15 days in November 2008. A new method of collecting data was developed for Indian airfields. A grid system based on magnetic orientation of runway was combined with time series data collection to obtain spatial distribution of birds (Fig. 2). Data were collected continuously from half an hour before sunrise to half an

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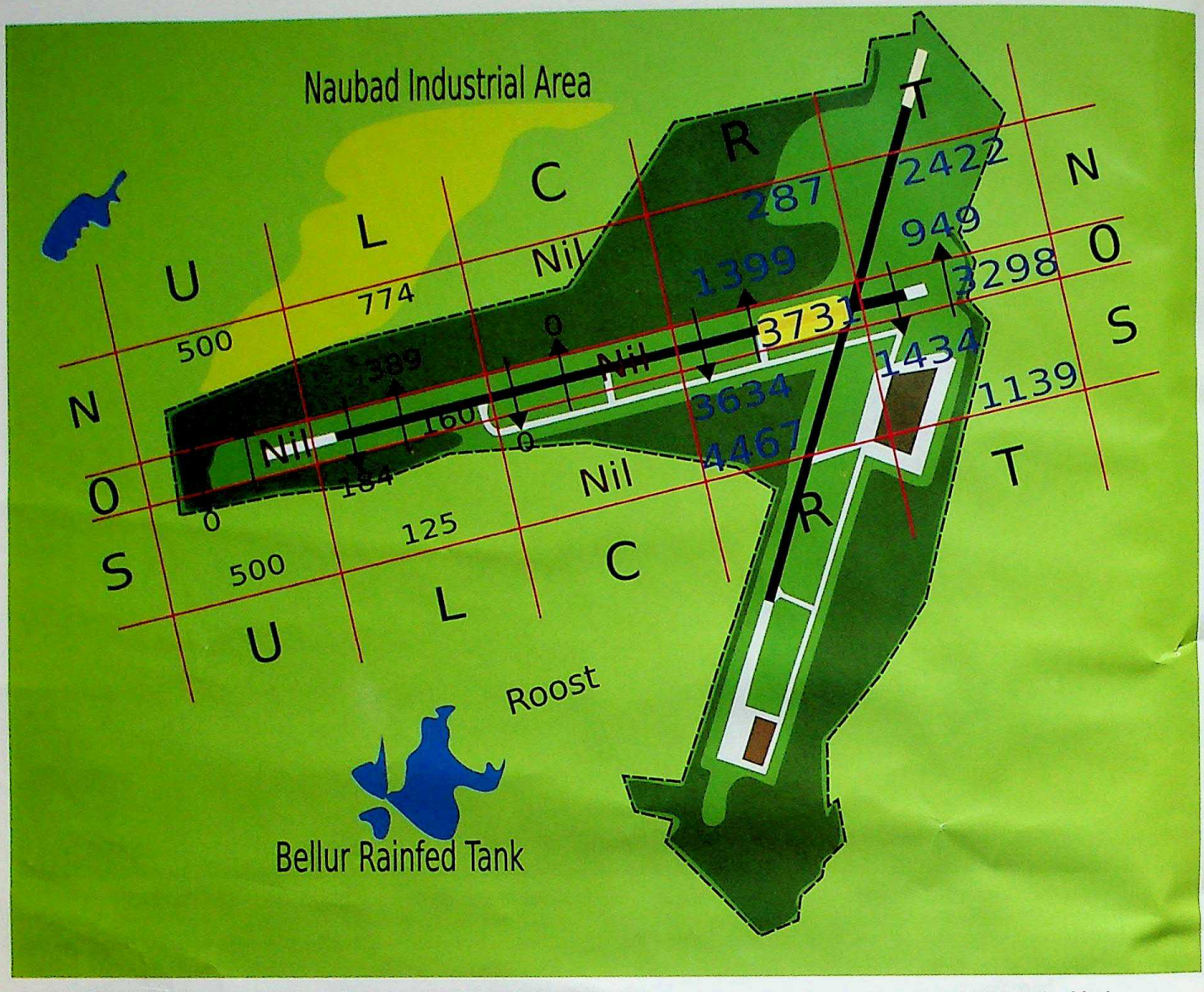

Fig. 2. Classification of Bidar airfield into 'data collection' grids. Number of larks recorded each grid is given in respective blocks.

hour after sunset for two days during both visits and compared for detecting change.

For developing horizontal zone classification, runway orientation was considered. North or east was taken as 'reference direction' depending on the runway orientation. All runways with orientations falling in 5–14 (45°–135°) to 23–32 (225°–315°) were considered suitable for east (E) reference. The rest of the orientations were considered under north (N) reference. Once the reference direction was found, each runway was assigned five important vertical zones and three horizontal zones with two events of birds crossing runway.

Vertical zones were abbreviated with five letters i.e., left one third portion of runway (facing north or east) as 'L', center one third as 'C', right one third as 'R', undershoot on the left as 'U' and, undershoot on the right designated as 'T'. Horizontal zones were abbreviated as east/north (E/N), west/south (W/S), and all birds occurring on runway (+10 m from edges) were denoted as 0 (zero).

In the time series data, approximate height of birds, factors for attraction, and pertinent remarks were also recorded. Number of larks recorded at each grid is given in respective blocks (Fig. 2).

All crossings from north to south or east to west were denoted as 1 (one) and crossings from south to north or west to east denoted as 2 (two). Combinations (total 25) arising out of this were entered immediately, in the field, into an Excel worksheet on a laptop, along with relevant columns for species, time, height, date, number, *etc*. In Bidar, horizontal zones of main runway were fitted into 'north' reference (Fig. 2). Data collected were subjected to simple statistical analysis to try and understand the preferences of larks. The entire airfield was surveyed to plot areas in which long or short grass was maintained. Areas outside the airfield were surveyed to identify the water, roosting and feeding requirements of larks. Time series arrival counts of Short-toed Larks, from their roosting ground (near Bellur tank) in the south, were made on two days and are represented in Fig. 3.

Habitat around Bidar airfield

Bidar airfield is located on a laterite plateau measuring *c*. 16 km². The watershed area in the north drains into Bellur tank. The plateau is covered extensively by various grass species.

Blackbuck *Antilope cervicapra* and grazing cattle populate the area south of the airfield. There are bare patches and the grass cover here is short, reaching a maximum height of 20 cm. This area is being developed as an industrial estate. Much of the grass cover on the south-western part of the plateau has been lost due

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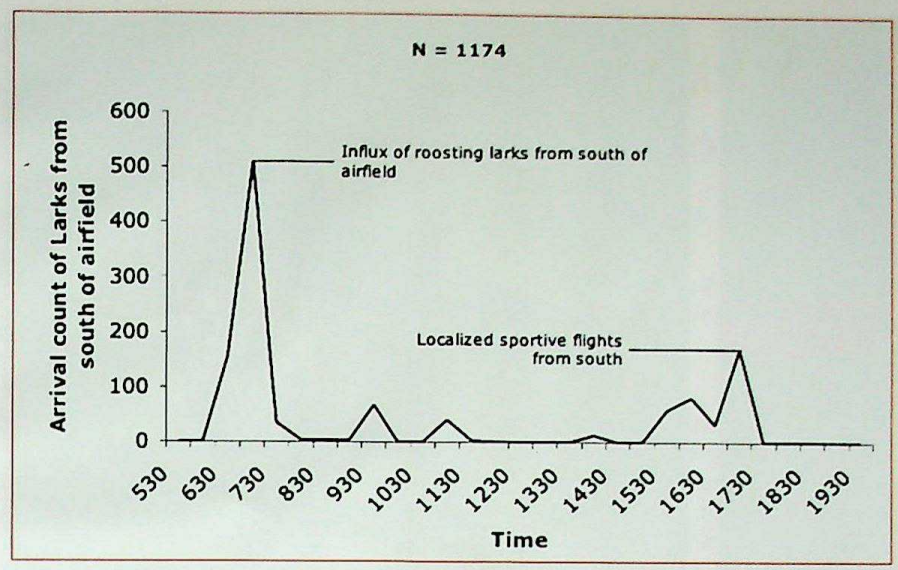

Fig. 3. Greater Short-toed Larks roost south of Bidar airfield and infest all along secondary runway (2–20)

to development. The area north of the airfield belongs to the IAF and has a similar habitat but lacks blackbuck although grazing by cattle is intense. This area has scattered shrubs like *'vilayati babool' Prosopis juliflora* and *Acacia nilotica*. A railway line runs along the northern periphery. The airfield itself is sandwiched between these grazing areas. During the study period, extensive long grass stands (100–125 cm) were found 70–100 m away from runway edges towards boundary wall except in the north, where shorter grass species were abundant. Short grass (4–20 cm) was maintained up to 70–100 m from the runway and taxi track edges. Details of long and short grass cover are shown in Fig. 4.

Analysis of habitat dependency of Greater Short-toed Larks in Bidar

Our study found Greater Short-toed Larks extensively dependent on short grass area (Figs 2 & 4) for feeding and roosting. Time series data analysis and field observations strongly indicated that

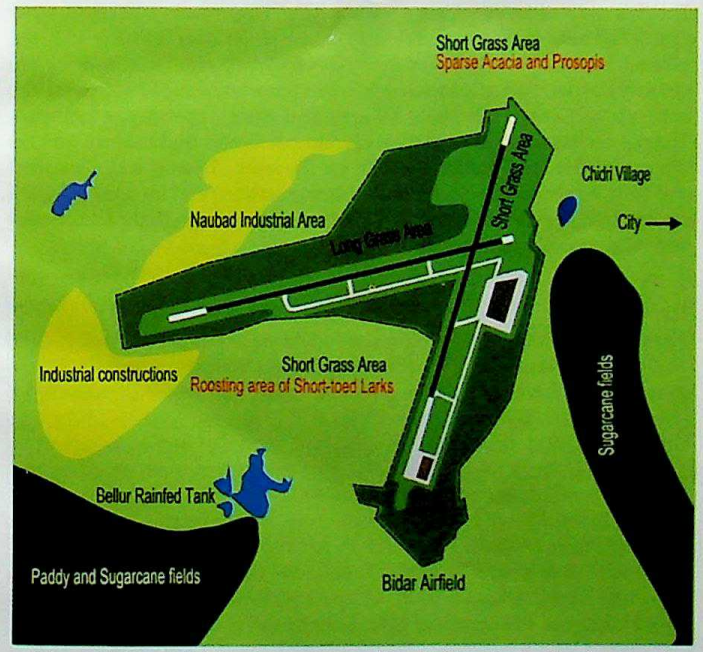

Fig. 4. Bidar airfield and its surrounding habitat including long and short grass area.

larks operated over airfield in a corridor (Fig. 5; also see Fig. 2).

A patch of long grass stand adjacent to the point where the two runways cross each other (Fig. 5), within the southern boundary wall of airfield, had been removed a few weeks after the migration of larks. During the study period, grass height at this place resembled short grass area. This provided Greater Short-toed Larks a continuous patch of short grass extending from Bellur tank to north of airfield, rich with fallen seeds in the uncollected debris. This observation is supported by data collected along the secondary runway in February 2008 with previous winter migrants.

Management modules

Comprehensive measures to manage harriers, rodents, wildlife and other predators of small birds have been discussed under respective headings in the final report submitted to Air HQ. The following habitat modification modules were considered after a careful analysis of roosting pattern around the airfield.

Studies clearly established an operating corridor of Greater Short-toed Larks over Bidar airfield. This was used in designing specific management modules. The corridor was divided into three blocks for this purpose (Fig. 5). It was evident that at least two blocks needed to be managed to reduce the dependence of larks on airfield. The obvious choices were Blocks 2 and 3 as they were under the control of IAF. Block 1, fulfilling the roosting requirement of larks with abundant supply of water, was more difficult to manage due to presence of blackbuck and grazing requirements of village livestock.

In Block 3, *'vilayati babool'* was planted at distances of 2 x 2 m (Fig. 6). The close spacing, along with frequent pruning and grazing by livestock, will help in maintaining shrubs to a height not more than 1–1.5 m. *Prosopis* withstands heavy grazing. Bougainvillea is planted in the fringe area adjoining the link road to airfield. This breaks the continuity of grassland and reduces large patches of habitat preferred by larks.

In Block 2, Bougainvillea is grown near the compound wall and all along the road leading to ATC and beyond (north-end of secondary runway). The plants may be closely spaced to cover ground and fragment the habitat.

Long grass should be maintained in airfield at least 100 m from the edges of runway and taxi tracks up to boundary wall (Fig. 4). In winter, from September to April, retain the density of ground cover by not cutting the grass. Modules to manage wildlife and rodents are in place.

In Monsoon months, the grass sprouts should be maintained at 100 cm or slightly above (110 cm) and grass debris should be collected.

Maintain short grass (10–15 cm) in areas adjoining runway and taxi tracks. Here, mow the grass as frequently as possible since the species flower in short span of time and shed seeds. Collect the debris after mowing. As far as possible, do not let the grass set seed. Rejuvenate barren patches by sprinkling grass seeds, collected in the previous winter, mixed with fine sand during first rain.

The calls of Common Kestrel *Falco tinnunculus* and Collared Scop's Owl *Otus bakkamoena* should be broadcast on runway shoulders at appropriate points.

Drumbeats on the runway shoulders (a beater positioned on a vehicle) are effective from a distance of 200 m. It has been observed

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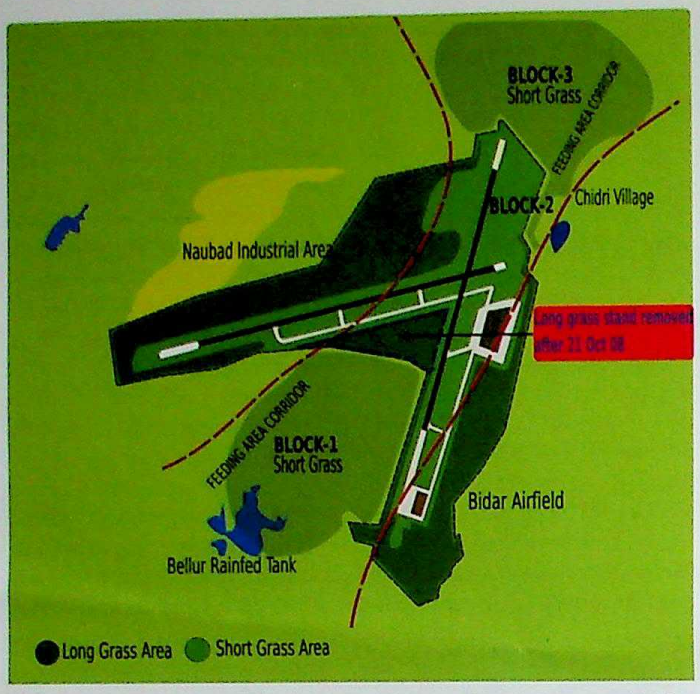

Fig. 5. Greater Short-toed Larks operate in a corridor fashion over Bidar airfield.

Fig-6. Block management with *Prosopis* & *Bougainvillea*

that the birds effectively got disturbed and moved away from runway edges.

Fishnets of 5 x 5 cm openings should be laid on runway shoulders without any bait on short grass. The net will be laid out horizontally on areas preferred by larks. Two systems of laying the nets should be practiced along the runway shoulders. In the first, a set (maximum two) of nets (dimension: 3–4 m of length by fixed breadth) will be placed on the shoulders every morning and collected back in the evening. The position is changed everyday. Nets can be laid at important points on shoulders like abeam touchdown zone, middle markers, undershoots, *etc.* In second, a set of nets should be positioned in places where larks congregate in large numbers. Here, the nets will remain for three to four days. Thereafter the position of the nets should be changed to another lark-frequenting area. In both systems, larks trapped in the net should be released after a short time. A bird watcher should be guarding the net to drive away harriers that may get attracted to the easy prey base. Distress calls should be digitally recorded from the trapped birds for future use on runway shoulders.

Pallid *Circus macrourus* and Montagu's Harriers *C. pygargus* should not be persecuted on airfield as they feed on Greater Short-toed Larks. The mobile birdwatchers positioned along the runway are employed to chase harriers away from the shoulders during flying time.

Obtain the rainfall pattern of the north-western Indian airfields like Jaisalmer, Nal, Naliya, Bhuj, Jodhpur and Jamnagar from April to August every year. Though this is not a foolproof system to forecast the numbers of larks migrating to Bidar, at least a rough estimate can be made. The less rainfall (than average) in the north-western airfields vis-à-vis normal or excess rainfall in Bidar would result in more food being available to larks at Bidar and hence an increase in the migratory population expected. Suitable preparations for the coming winter should be made based on this.

Conclusion

The 'menace' of Greater Short-toed Larks in Indian aerodromes can be managed by designing suitable species-specific management modules. These modules will always be aerodrome-specific in nature. Habitat management inside the airfield should not be considered lightly as the stakes involved are high. Long grass lost will take at least a year to regain its height. Hence, keeping the requirements of airfield vis-à-vis wildlife population increase due to long grass inside the boundary wall should be brought to equilibrium to achieve win-win situations.

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Observations on the globally threatened Pied Tit *Parus nuchalis* at Jessore Sanctuary, Gujarat

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Abstract

I discuss observations made on the globally threatened Indian endemic Pied Tit *Parus nuchalis* during a study conducted between July 2003 and February 2005 at Jessore Sanctuary, northern Gujarat. Twelve sightings of the species (18 individuals) were obtained chiefly in thorn-scrub habitats dominated by *Acacia senegal*. Several avian co-habitants were listed from the area and its overlap with Great Tit *P. major* explored. Pied Tit appears to be an intrinsically rare species with a mean encounter rate of 0.18 individuals/km and a relative abundance of 0.0034 at Jessore. This rarity combined with a patchy distribution, disjunct range, limited availability of nesting sites and human pressures on its thorn-scrub habitat point at the need to review its conservation status at the global and national levels.

Introduction

Pied or White-naped Tit *Parus nuchalis*, a globally threatened species endemic to India, is patchily distributed over two disjunct regions. The northern part of its range lies in the states of Gujarat and Rajasthan, while the southern portion, is in the dry lands of the Deccan peninsula (Hussain *et al.* 1992; Grimmett *et al.* 1998). Its range and population have undergone a significant decline in the recent past (BirdLife International 2001). Its ecology and conservation status have mainly been documented in Kachchh (Ali 1954–1955; Hussain *et al.* 1992; Tiwari & Rahmani 1997; GEER & GUIDE 2001). Inadequate understanding of its ecology, specifically its abundance, habitat use and distribution patterns, owing to patchy occurrence and rarity throughout its range are the major hindrances in its conservation as it's thorn forest and thorn-scrub habitats are fast disappearing and degrading (BirdLife International 2001). Here, I discuss aspects of the ecology, behaviour and conservation status of this species based on a study of the avifauna of Jessore Sanctuary, northern Gujarat, conducted from July 2003 to February 2005.

Study area

Jessore Sloth Bear Sanctuary (24°20′N 72°23′E; hereafter, Jessore) is located in the southern part of the Aravalli Hills in Banaskantha district of Gujarat (Fig. 1). Spread over an area of 180.66 km², it is connected through degraded forest corridors with two other nearby protected areas—Balaram-Ambaji Wildlife Sanctuary (Gujarat) on its east and Mount Abu Wildlife Sanctuary (Rajasthan) on its north/north-east. The topography is hilly and rugged with the highest point being the Jessore Hill (*c.* 1,000 m). The Banas and Sipu Rivers flow along its southern and northern boundaries, respectively. The vegetation types at Jessore include mixed dry deciduous forests and open woodland on hills to degraded deciduous-scrub, thorn forest and thorn-scrub in the plains (Singh 2001; *personal observation*). The thorn forests and thorn-scrub occur in the western and south-western parts of Jessore. The chief features of this habitat include a sandy soil and extensive ravine/gully formations with predominantly thorny vegetation. The major tree species include *Maytenus emarginata*, *Acacia senegal*, *A. tortilis* (planted), *Butea monosperma*, *Zizyphus mauritiana*, *Wrightia tinctoria* and occassional *A. nilotica* and *Prosopis chilensis*, while shrubs and bushes include *Balanites aegyptiaca*, *Dichrostachys cinerea*, *Zizyphus nummularia*, *A. auriculiformis*, *Capparis aphylla*, *Crotolaria* spp., *Calotropis procera*, and *Tephrosia* spp. Since the past three decades, mesquite *P. chilensis*, an invasive exotic tree has encroached more than half of the original thorn-scrub habitat in the valleys, stream beds, fringes of reservoirs and lower portions of hills (Singh 2001).

Fig. 1. Jessore Sloth Bear Sanctuary, Gujarat, India.

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Table 1. Sightings of Pied Tit *Parus nuchalis* at Jessore Wild Bear Sanctuary, Gujarat

Date	Time (hrs.)	Number	Habitat	Vertical Location	Activity/ Remarks
18.xii.2003	0900	2	AM-Sc	1–3 m	F-C
26.i.2004	0811	2 *	AM-Sc	1–3 m	F-C
26.i.2004	1700	1 *	AMW	1–3 m	F
11.iii. 2004	1726	1 *	AMW	3–8 m	F
29.vii. 2004	1100	2	AAPF	1–3 m	M-C
27.viii. 2004	1659	2 *	AAnW	1–3 m	F-C
29.viii. 2004	0745	1 *	AZW	3–8 m	P-C
30.x. 2004	0855	1 *	AC-Sc	1–3 m	P-C
01.xi. 2004	1045	2	AM-Sc	0–1 m	F-C
26.i. 2005	0824	2 *	ZBW	1–3 & 3–8 m	F-C
26.i. 2005	1115	1	AC-Sc	1–3 m	F-C
27.i. 2005	1015	1	AMW	1–3 m	F-C
Total	—	18	—	—	—

Abbreviations: AAnW=*A. senegal-A. pendula*?—Woodland; AAPF=*A. senegal-A. tortilis-P. chilensis*—Forest; AC-Sc=*A. senegal-C. auriculiformis*—Scrub; AM-Sc=*A. senegal-M. emarginatus*—Scrub; AMW=*A. senegal-M. emarginatus*—Woodland; AZW=*A. senegal-Zizyphus* spp.—Woodland; ZBW=*Zizyphus-Butea*—Woodland. C=calling; F=foraging; M=moving; * sighted on transect.

Methods

Data collection was carried out on 38 field days by walking 1–2 km long line transects, and along existing trails in representative habitats. On sighting Pied Tit, I recorded the number of individuals, habitat, vertical location (in intervals of 0–1, 1–3, 3–8 and above 8 m), and activity, and associated bird species (including their interactions). When I sighted Pied Tit on trails, I followed it and recorded its behaviour. Over 90 min of behavioural observations were made of both, pairs, and solitary individuals. Its encounter rate was derived as the number of individuals divided by the distance walked. Mean encounter rate was the average of encounter rates of all transects. Relative abundance was the proportion of individuals of Pied Tit out of the total number of individuals of all species sighted on all transects. Common and scientific names follow Manakadan & Pittie (2001).

Results & discussion

Abundance and habitat use: I recorded 18 individuals of the species in a total of 12 sightings. Of these, six sightings were of pairs and the rest were of solitary individuals. All sightings of the species occurred in thorn forests or thorn-scrub habitats (Table 1) and consisted of adult birds. Pied Tit had a mean encounter rate of 0.18/km and its relative abundance was 0.0034 (Trivedi 2005) clearly indicating the rarity of the species. This seemed to be a case of constitutional rarity (as against apparent rarity caused by sampling; see Terborgh *et al.* 1990), which is generally the case with raptors, large-bodied bird species, and endemics. Ali (1954–1955) regarded Pied Tit as, 'fairly common in Kachchh but capriciously patchy; sparse and sporadic in the Palanpur area', based on his surveys in the 1940s. Surveys in Kachchh by Hussain *et al.* (1992) and Tiwari & Rahmani (1997) showed its status as 'bleak' and 'uncommon', respectively.

Thorn forests with gently undulating, broken-hilly country were the typical habitats of the species in Jessore. Pied Tit was not sighted in mixed deciduous forests in higher hilly areas or dense *Prosopis* thickets. With one exception, the species was sighted in habitats dominated by *A. senegal*. No sighting was obtained on hills higher than 300 m and the *Anogeissus*-mixed forests above this altitude. Occurrence of all the sightings of the species in thorn forest habitats with *Acacia senegal* was in accordance with reports of its occurrence in similar habitats, albeit with variable species composition, having *Acacia nilotica, A. senegal, A. leucophloea, A. catechu, Prosopis* spp., *Salvadora* spp., *Zizyphus jujuba, Euphorbia nivula* and *Capparis decidua* in Kachchh and Rajasthan (Hussain *et al.* 1992; Tiwari & Rahmani 1997; GEER & GUIDE 2001; Tiwari 2001; Sharma 2004). Thus, the species is clearly partial to thorn forests with *Acacia* spp., in association with other thorny trees and shrubs, except in its southern range where it was seen among forests containing tamarind *Tamarindus indus, A. leucophloea* and *Albizzia amara*. Use of dry riverbeds reported earlier (GEER & GUIDE 2001) was also observed thrice during the present study. 83% of the sightings were within 1 km radius of the nearest human habitation or road. Its distribution was 'patchy' and mainly confined to southern and south-western parts of Jessore. The reiteration of the rarity of Pied Tit through this study coupled with its patchy distribution highlights the need for concentrated and sustained efforts in monitoring population trends.

Avian co-habitants and overlap with Great Tit Parus major: Bird species generally associated with Pied Tit and/or co-occurring in the same habitat types mainly included a few endemic resident species and some migrants, especially warblers. Based on their occurrence on the transects/trails where Pied Tit was sighted (Trivedi 2005), Yellow-eyed Babbler *Chrysomma sinense*, Marshall's Iora *Aegithina nigrolutea*, Red Collared-Dove *Streptopelia tranquebarica*, Plain Prinia *Prinia inornata*, Bay-backed Shrike *Lanius vittatus*, White-browed Fantail *Rhipidura aureola*, Orphean Warbler *Sylvia hortensis*, Lesser Whitethroat *S. curruca*, Spotted Flycatcher *Muscicapa striata* and Black Redstart *Phoenicurus ochruros* were its common co-habitants.

Great Tit and Pied Tit were separated at Jessore by both altitude and vegetation type used as all sightings of the former (n=19) were in hilly mixed deciduous forests, while the latter inhabited the thorn and thorn-scrub habitats in gently undulating country (n=12). On two occasions (16.6 % of the sightings) I observed Pied Tit in mixed-species associations. The species associated with it in flocks were—White-browed Fantail and Lesser Whitethroat (two flocks); Black Redstart, Franklin's Prinia *P. hodgsonii*, Small Minivet *Pericrocotus cinnamomeus*, Common Iora *A. tiphia* and Red-vented Bulbul *Pycnonotus cafer* (one flock each). Hence, my

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observations do not agree with Tiwari (2001), wherein the two species were seen in a single flock near Jessore. There appears a clear spatial segregation between the two species in many areas (Ali 1954–1955; Lott & Lott 1999), as also observed at Jessore. For instance, in the Saurashtra peninsula of Gujarat, where Pied Tit is absent, Great Tit inhabits the thorn forests (Khachar 1996; *personal observ.*), while in Kachchh only Pied Tit is present in such habitats (Ali 1954–1955). Several species of Paridae are known to be important flock forming species and it is likely that Pied Tit plays such a role as also indicated by its loud and varied calls. I once found that its call attracted the attention of Orphean Warbler, Red-vented Bulbul and various prinias, which moved towards the calling bird.

Behavioural observations: Pied Tit was highly restless and vocal while foraging. Its foraging method may be described as foliage-and-bark-gleaning. It mainly employed the 'hop-glean' and 'hang-glean' methods while feeding. Rarely was it seen to hover. Its foraging height was between 1–3 m in most cases (75% observations; n=12); thrice it foraged higher (3–8 m) and once very close to the ground (Table 1). During behavioural observations, the species was seen feeding on insects (and spiders?), which were gleaned from leaves, bark, and fruit or flowers. It was also seen feeding on fruits of *Maytenus emarginatus* and inflorescence of *Butea monosperma*, although it was not possible in the latter case to ascertain whether it fed on insects or nectar.

Pied Tit was highly vocal and uttered frequent contact calls resembling "*chi...chi...chi*", "*chik...chik*" and a harsh "*chuck...chuck*" call. Its song comprised whistling notes—"*chwee...chi.chi.chweet*" or "*chwee...chi.chi.chi.chi...chweet*". The first and last syllables were longer and produced a shrill whistle-like effect. The middle syllables (*chi*) were generally uttered two to four times. The gap between the first and the second syllable was more than between the following notes. The species sang from treetops. The call was loud and audible up to 100 m. Calls of the species were of immense help in detecting it during surveys, as also noted by others (Tiwari & Rahmani 1997; Lott & Lott 1999). No breeding or nesting behaviour was observed. Pied Tit was not as 'wary and shy' as reported in earlier studies (Hussain *et al.* 1992; Tiwari & Rahmani 1997; Lott & Lott 1999). In one instance, I observed the birds at *c.* 3 m for almost 15 min. Their sightings in proximity of human dwellings also points to their tolerance of human presence (Jones 2007).

Conservation status: Hussain *et al.* (1992) documented 45 sightings comprising atleast 76 individuals from published literature, between 1844 and 1991. Tiwari & Rahmani (1997) reported another 25 sightings with 41 individuals. Later, Tiwari

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Pied Tit *Parus nuchalis* at Phot Mahadeo, Kachchh, January 2009.

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(2001) reported 15 sightings and 27 individuals (four from northern Gujarat and 23 from Rajasthan) from a survey carried out in its northern distribution range in 1996. In the last decade, about 40 sightings and 65 individuals have been reported in literature from the northern parts of the species' range (Chhangani 2002; GEER & GUIDE 2001; Mehra 2004; Sharma 2004; Tehsin *et al.* 2005; Dookia 2007; Sangha 2008). This, together with the sightings reported in this paper and other stray sight records of the southern population (Lott & Lott 1999; Jones 2007) constitute a maximum of 165 records and 250 individuals over 150 years. Five of the surveys/studies (Hussain *et al.* 1992; Tiwari & Rahmani 1997; Tiwari 2001; GEER & GUIDE 2001; Trivedi 2005) carried out focused search/study for this species. Considering its low abundance reported so far, the species appears 'very rare' and patchily distributed even in suitable habitat.

Its estimated range of 62,700 km² (BirdLife International 2001) is disjunct and local patchiness of distribution coupled with increasing negative anthropogenic influences leave a low proportion of this as suitable habitat. At Jessore, thorn forest and thorn-scrub habitats where Pied Tit was sighted were under severe stress. Although clear trends are not available, Singh (2001) has shown a loss of about 30 km² of *Acacia* and *Zizyphus* forest to the exotic *Prosopis chilensis* in about three decades in the Kapasia area of the sanctuary. I recorded heavy biotic pressure in the form of cutting and lopping of *A. senegal*, *M. emarginatus* and *B. monosperma* trees for fuel and fodder, spread of the invasive exotic *P. chilensis*—leading to loss of its natural thorn-scrub habitat, as also shown by others (Khachar 1996; GEER & GUIDE 2001; Tiwari 2001), unregulated grazing of livestock, stone and marble quarrying, lack of awareness among enforcement staff, and clearing of land for agriculture. All these factors could have a long-term impact through the loss and alteration of suitable habitat.

Apart from its rarity, lack of sightings of immature birds and no evidence of breeding of Pied Tit during the present study possibly points to a lack of nesting activity in the area, nesting failure or local/regional movements for breeding. Besides, breeding by the species and presence of immature/young birds has been reported only by a handful of authors (Ali 1954–1955; GEER & GUIDE 2001; Hussain *et al.* 1992; Lott & Lott 1999). Nesting failure has been identified as a likely reason for the decline of Pied Tit by Hussain *et al.* (1992). Pied Tit is a secondary hole-nester and apparently depends on nest holes made by Yellow-crowned Woodpecker *Dendrocopos mahrattensis* for breeding (Tiwari & Rahmani 1997). The latter had a relative abundance of 0.0024, lower than that of Pied Tit itself at Jessore (Trivedi 2005). This could be a crucial limiting factor for potentially breeding Pied Tit. Natural cavities in trees are also used by Pied Tit for nesting. The tree species that develop such natural cavities at Jessore include *Acacia senegal*, *Butea monosperma*, *Maytenus emarginatus*, *Salvadora persica*, *S. oleoides*, *Bauhinia racemosa* and *Prosopis cineraria* (*personal observ.*). Suitable holes are generally present in old trees; however, in the exotic *P. chilensis* such cavities are rare, if not absent altogether (*personal observ.*). Cutting of large trees in the thorn-scrub habitats and spread of *P. chilensis* at Jessore is thus reducing the availability of potential nesting sites for the Pied Tit.

Conclusion

The endemism and constitutional rarity of Pied Tit coupled with its patchy distribution, low conservation priority as evidenced by its inclusion in Schedule IV of the Indian Wildlife (Protection) Act, 1972, lack of evidence for breeding at Jessore, low abundance of its nest-host—the Yellow-crowned Woodpecker, and rampant loss, degradation and fragmentation of its thorn forest and thorn-scrub habitats point towards a need to review the status of the species and assign a higher conservation priority to it at the national and global levels.

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The raptors and the agamid

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A posting to the desert for an army-man is not unusual and I got my chance to serve in this terrain in mid 2004, at Jaipur, after more than 20 years of service; on all previous occasions as a junior officer, I had passed through fleetingly with hardly a chance to notice or experience anything. Now a Commanding Officer, I eagerly anticipated getting a good look at the landscape and its wildlife.

At the first opportunity I wandered off into the desert in a Gypsy 4WD. Driving eastward along the NH from Jaisalmer towards Jodhpur, I saw an obscure desert track and turned onto it, speeding on the sandy track across the country, towards the beckoning dunes. On each side were wide-open spaces punctuated by the occasional *khejri* tree *Prosopis cinerarea*. A cross-breeze trickled sand across the track and shadows grew long as the sun paused over dunes. A small desert fox *Vulpes vulpes pusilla* with a bushy, white-tipped tail (Menon 2003) ran away from the vehicle.

All of a sudden, a large lizard zipped across the road, a few metres ahead of me, and dived into the sand. Before I could apply the brakes, the lizard was gone. I could not register what exactly had happened, even though it happened again and yet again. Lizards zoomed past, left and right. I was driving across a lizard colony like a German panzer division across the Russian steppe. In the fading light, the impression that stood out fleetingly was that of a thick tail with black and white rings.

A few days later, I ventured across the same path at mid-morning. I soon came across the colony of dust-brown lizards. Stopping the vehicle and getting out scared them away, so I resorted to driving up as close as I could and using binoculars. I looked hard and long at a large, snub-headed lizard with a ringed tail. I had finally met up with *Uromastyx hardwickii* Gray, 1827, Hardwicke's spiny-tailed lizard or '*sanda*' as it is called in Hindi (Daniel 1983).

These lizards belong to the family Agamidae and are the only species of *Uromastyx* to be found in India—most of their relatives being North African or West Asian—with stubby legs holding a less-than-half-a-metre long cylindrical body barely off the sand, these vegetarian agamids hold up their large rounded heads, with flat snouts, smartly as they alertly look ahead. The slightest alarm sends them zipping off into their burrows in the sand. Their most interesting aspect is the tail. It has blue-gray spines arranged in whorls along its length, decreasing in size towards the tip, which is a pale or earthy yellow in colour.

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Fig. 1. Spiny-tailed Lizard *Uromastyx hardwickii*.

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Ashwin Baindur

Laggar Falcon *Falco jugger* feeds on a Spiny-tailed Lizard *Uromastyx hardwickii*.

The *Uromastyx* is one of the few lizards utilised by man. In North Africa, it is considered *'dhaab'* or fish of the desert and relished by Islamic nomad tribes (Grzimek 2003). In India too, these lizards are caught for their meat, about which Malcolm Smith (1935) says, '...with certain castes of Hindoos it is a regular article of diet...the meat is said to be excellent and white like chicken... the head and feet are not eaten, but the tail is considered a great delicacy...the fat of the body is boiled down and the resulting oil is used as an embrocation and also as a cure for impotence.'

Uromastix hardwickii repesents the southern and eastern limit of the extent of the Indo-African reptile fauna (Günther 1864). Interestingly, the lizard is named after a fellow-soldier, Major General Thomas Hardwicke, who is considered the first colossus of Indian natural history. He arrived at Fort William in 1778 as an artillery cadet in the Bengal Presidency Army, fought in the Rohilla and Mysore wars and was commended for gallantry on the battlefield. By 1809, he rose to command the Bengal Presidency Artillery. His span of duty and area of natural history study lay mostly in what is today Orissa, Jharkhand, Bihar, Uttar Pradesh, Bengal, Assam and Bangladesh (Singh 2006).

I visited the lizard colony often—initially, I thought them ugly but soon found that they looked very good to my eyes. They were always basking in the sun. I spent a couple of hours one day trying to observe them feeding. I hoped to see them nibbling on the *'siniya'* shrubs *Crotalaria burhia* or tufts of *'buadi' Aerva pseudotomentosa* (?) that dotted the landscape around them. A few *Prosopis* of the native variety, whose beans they are reported to eat (Daniel 1983), were present within a few metres of the colony. The colony itself was on a flat, firm gap between eroded sand dunes, which had been stabilised by vegetation, barely two meters high. The desert track meandered along this flat for a 100 m or so, which constituted the diameter of the colony.

Ashwin Baindur

Debris below Tawny Eagle *Aquila rapax* perch: bones, old pellets and an *Uromastyx* tail.

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One day, my son and I had the rare privilege of observing a predator catching its prey. A few lizards basked outside their burrows while the rest were inside. All at once and apparently from nowhere, a brown raptor swooped straight down, with trailing wings and extended talons. Before the hapless lizards could gain shelter, it had caught a small agama. In the wink of an eye, the rest of the lizards were out of sight. The raptor's sharp claws soon ended a few seconds of struggle. It remained on the sand about 60 m away, feeding ravenously. It was unaware of its audience, since its back was towards us, and I was forced to edge onto the dune and outflank it from the east. On reaching a vantage point, I had a good look at it through the binoculars. It fed hungrily for a good 15 min.

It was a dark brown falcon, with prominent moustaches and a white chest. Its thighs were dark-brown and it had a brown crown. Grimmett & Inskipp (2001), a book that I find handy, despite their pesky habit of renaming Indian birds, told me that it was a Laggar Falcon *Falco jugger*. I later had the identification reconfirmed through the kind courtesy of a member of India-nature-pix.

In about 20 min, the falcon had eaten the lizard. I could hardly see any remains. Angling to get a better view, I alerted it. After a moment or two, it flew off. I walked up to the kill, but had a hard time locating the forlorn grey tail, which was all that remained.

I visited the colony often, hoping to see more signs of predation. Since the local foxes are largely nocturnal, I had not had an opportunity to observe their feeding behaviour. I suspected that these lizards, and the many small rodents that poked their heads out after dark, formed part of their diet.

For a few months, nothing interesting happened during my field trips. Then in mid-summer, I chanced to go south of Jaisalmer. It was a windy day. The sand blew steadily, forming a constant desert haze. I found a small colony of *Uromastyx* next to the road. To my surprise, this time there was a raptor nearby. It was a large, brown, heavy-set Tawny Eagle *Aquila rapax* perched on a desiccated '*rohida*' tree *Tecomella undulata*. The lizards and eagle appeared to be oblivious of each other and seemingly intent only on braving out the scouring sandstorm. The swirling sand inhibited the use of binoculars so I walked up to the tree, upon which the raptor took off into the brown swirls. Numerous white streaks on the bole and branches told me that it was a favourite perch. I sifted the litter at the base of the tree in the hope of getting pellets but found something else—desiccated spiny-tail fragments and a few bones. This seemed to indicate that the Tawny Eagle was a likely predator of *Uromastyx*.

The Tawny Eagle was one of my constant objectives in the field—a strong and agile bird of prey—it was the predominant avian desert raptor. During a drive on 11th June 2006, along what I call 'Eagle Alley', a 10 km stretch of road between Pokharan and Khetolai, I counted 12 Tawny Eagles perched on wires, masters of all they surveyed.

A few days later, I returned to Eagle Alley to see a handsome Tawny Eagle, a beautiful near-orange-fawn in colour, sitting on a concrete fence picket near Chacha Odhaniya railway station. It looked at me very distastefully and proceeded to express its opinion of me by being violently sick! It then flew off without a backward glance. I suspected that it had just ejected a pellet and scrambled across barbed wire and thorn to get at it. I was gratified to find a sticky yellow-white pellet with spines of *Uromastyx* clearly visible. I photographed the pellet, delicately maneuvered it into a polythene bag and brought it home; but alas some over zealous house cleaning left me with no chance to dissect it.

Lydekker (1895) states about the Saker Falcon *F. cherrug* that, 'In the Harriana Desert of India these falcons feed largely on a spiny lizard of the genus *Uromastix*.'

Ashwin Baindur

Fig. 3. Tawny Eagle *Aquila rapax*.

The Saker Falcon is, of course, a winter visitor to the Indian Subcontinent, while the Tawny Eagle and the Laggar Falcon are residents. The Spiny-tailed lizard, being locally common in patches, is probably a significant food source for these birds of prey of the Indian Desert.

Soon after, my unit moved out from Rajasthan and I saw my last Spiny-tailed lizards on a stormy July evening braving the sand sitting close to their shelters. Nearby somewhere, I was sure, were Tawny Eagles, girding themselves against the gritty dust storm, which brought my tryst with the desert to an end. Our special train chugged out of Lathi at nightfall and I left the desert and all its mysteries behind me yet again.

Acknowledgements

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Wikipedia (http://en.wikipedia.org) articles on *Uromastyx hardwickii*, *Aquila rapax* and *Falco jugger*.

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Two new birds for Gujarat

Uffe Gjøl Sørensen & Jugal K. Tiwari

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During a five-day visit to the Banni grasslands, in February 2007, we saw two bird species that had previously not been reported from Gujarat. A single Caspian Plover *Charadrius asiaticus* was most unexpected as it is a vagrant to the Indian Subcontinent with only few previous records. The species is a long-distance migrant, breeding in Central Asia, with its normal winter-range in dry areas of southern and eastern Africa. However, the more interesting discovery was perhaps the several records of Water Pipits *Anthus spinoletta*. This species breeds in mountains across interior Eurasia and winters further south. The records may indicate the species to be an over-looked visitor to the Gujarat wetlands—at least in years following a good monsoon, like 2006–2007, when plenty of temporary wetlands are found across the Banni grasslands.

Caspian Plover Charadrius asiaticus

During mid-afternoon on 12th February 2007 we reached the shallow, saline lake of Hodko Dhand, NW of Bhuj. A massive flock of 3,000+ (10% juveniles) Lesser Flamingo *Phonicopetrus minor* and 54 Greater Flamingo *P. ruber* was the immediately appealing sight in the centre of the partly dried-up lake, and a good concentration of waders crowded the shores—200 Lesser Sand Plover *Charadrius mongolus*, 300 Kentish Plover *C. alexandrius*, 20 Black-tailed Godwit *Limosa limosa*, 500 Marsh Sandpiper *Tringa stagnatilis*, 600 Little Stint *Calidris minutus*, 25 Dunlin *C. alpina*, 600 Ruff *Philomacus pugnax* and a single Spotted Redshank *T. erythropus*. The single Caspian Plover was located by chance by UGS as he scanned the waders through a telescope. It was almost immediately identified, based on his previous field experience in Africa. The plover stood still at the nearest shoreline (*c.* 150 m away), with actively feeding Marsh Sandpipers and Little Stints around it, and Lesser Sand Plovers nearby. No sooner we realised the importance of the record, an effort was made to get photographs. Albeit the distances only allowed simple digiscoped pictures, taken with a Canon 350D reflex camera through the Leica 32x80 telescope, we succeeded in obtaining five acceptable shots fit for identification (Fig. 1). Soon afterwards, a passing Marsh Harrier *Circus aeruginosus* disturbed the waders, which all flew up. Unfortunately, the Caspian Plover was immediately lost and never seen in flight. When the waders resettled at a greater distance the species could not be found despite a concentrated effort, including walking several hundred meters into the lake to approach the main concentration of waders. It seems likely that the plover left the lake area during the turmoil.

Uffe Gjøl Sørensen

Fig. 1. Caspian Plover *Charadrius asiaticus* at the saline lake of Hodko Dhand, NW of Bhuj, Gujarat, 12th February 2007.

Description: A medium-sized plover, being fairly long-legged and long-winged (wings reaching a little beyond tip of tail). It was smaller in size than nearby Marsh Sandpipers. The bird stood still throughout the observation. Compared to nearby Lesser Sand Plovers the bird seemed more 'elegant' with a smaller head and a tapering body—because of the longer wings—and less greyish-looking, with an overall golden tone to its plumage.

Detailed plumage description: Forehead, lores, chin, throat and ear-coverts were white with a buffish tone and a distinct, broad, white supercilium, reaching well behind the eye and ending abruptly, square-cut. These white areas contrasted with a uniform dark crown—giving the slight effect of a cap—and a dark broad eye-stripe starting just in front of the large, dark eye and continuing backwards and fusing into the grey-brown nape. It had a distinct, complete and uniform grey-brown band across its breast with well-marked borders to both the buffish white throat and white belly. Back and wings uniform grey-brown with a golden tone.

Bare-parts: A fine, pointed bill, looking all dark, almost blackish. Legs yellowish-brown.

Discussion

The uniform plumage, without paler fringe feathers on its scapulars, indicates the bird was an adult, as does the markedly well-defined breast-band.

Only two plovers show a complete, broad breast-band: the Caspian, and its sibling species from the eastern Palaearctic, the Oriental Plover *C. veredus*. The latter is a slightly larger bird, the size of a Marsh Sandpiper. It has longer legs and wings, which together with a longer neck gives it a different 'jizz' vis-à-vis a Caspian Plover. We have no field experience with *veredus* but in published plates and photos it appears, in winter plumage, to have a less well-defined breast-band and less contrast in the head-pattern, i.e., it never shows the very sharp distinction between whitish throat and dark breast band. Oriental Plover is a rarer vagrant to the Indian Subcontinent, than the Caspian (Rasmussen & Anderton 2005).

All in all, we find that the field details noted and the photo-documentation all point to a positive identification of an adult Caspian Plover in winter plumage.

Water Pipit Anthus spinoletta

Late in the afternoon, on 12th February 2007, we stopped at Kar, NW of Fulay village, in order to see pre-roosting harriers *Circus* spp., and around sunset the impressive flight of Common Cranes *Grus grus* (*c.* 15,000+) heading to their night roost. A characteristic *'tsip'* uttered by small birds flying overhead drew the attention of UGS. Realising these to be small pipits, and the sound not being the slightly harsh, buzzing call of a Tree Pipit *Anthus trivialis*—the most likely small pipit to occur in Gujarat during winter—full attention was given to identify these birds. One,

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Jugal Kishor Tiwari

Fig. 2. Water Pipit at Kar, NW of Fulay village, Gujarat, 12th February 2007.

and a little later, five, birds landed briefly on a gravel road less than 30 m ahead and good telescope views revealed the birds to be winter-plumaged Water Pipits. One stayed so long that there was time to call JKT, who also saw the bird well. At least 20 Water Pipits were recorded, including some flying over uttering the same call. We returned to the same spot the following evening in order to reconfirm the identification and successfully found six birds. JKT made a single photograph of two birds, while UGS recorded the call. JKT revisited the site on 4th March 2009 and obtained additional photo-documentation (Fig. 2). On this day there were no less than 60 Water Pipits. The pipits seem to gather for their night roosting in the long grass or somewhere nearby.

Description: A typical pipit—a small, fairly long-tailed ground-dwelling passerine with streaks on the breast of an otherwise whitish underside in contrast to a greyish brown upper side. Is smaller than nearby Long-billed Pipit *A. similis* (seen on both days in the same area; one and two respectively).

Plumage description: Uniform whitish underside except for malar stripes reaching streaked lower breast, with the breast streaks being a little darker than the malar stripes. Upper side was greyish-brown with weak streaks, giving a rather plain impression. A pronounced whitish supercilium reaching well behind the eye was striking. Two distinct wing-bars formed by whitish tips to medium and greater coverts. Legs were dark.

The dwindling light during our observation made the more subtle plumage characters difficult to record. However, the photos show a number of such details, namely, uniform ear-coverts with a brownish tone, a greyish nape in contrast to the rather weakly streaked back and crown, and white outer web to outer-most tail feathers. All photos were taken with a flash and it is possible that contrast is slightly exaggerated.

Call: To the ear the call was similar to that of the common European, Meadow Pipit *A. pratensis*, and can be transcribed as a short, thin, and high-pitched *'tsip'*. At least 18 individual calls were recorded, between one and five calls per recording. The calls were recorded from birds that were startled from the grass. It is most likely that calls of more individuals are included in the recordings. All calls have been analyzed and demonstrate an overall uniformity with a pitch roughly between 5.2–7.0 kHz (Fig. 3).

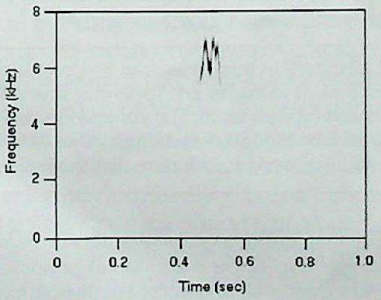

Fig. 3. Sonogram of call of Water Pipit *Anthus spinoletta* from Kar, NW of Fuglay, Gujarat, 12th February 2007.
[Recordings were made with a Sony Stereo Casette-Corder (TCS-600DV) and a Beyer dynamic directional microphone (MCE 86N(C) S). Calls has been digitized and analyzed by Cool Edit Pro software (Syntrillium Productions).]

Discussion

The plumage description noted in the field and the analyses of the recordings confirm the identification of Water Pipits. Three races are recognised worldwide. As the plumage differences are subtle, it is not advisable with the available information to hazard a guess of the subspecies involved. However, the recorded call matches sonograms of *A. s. blakinstoni*, recorded in Xinjiang Province of western China (Alstrøm & Mild 2003). This area is most likely the source of Water Pipits that reach NW India in winter. This race breeds in the mountains of Tajikistan in the west, through the Xinjiang and Qinghai Provinces of China in the south up to Mongolia in the north.

Six other small pipits occur in South Asia. Recent field guides do not concur regarding their distribution (Grimmett *et al.* 1998; Kazmierczak 2000; Rasmussen & Anderton 2005). As pipit species are notoriously difficult to identify, it seems appropriate to briefly comment on each. In Gujarat, only the Tree and the Red-throated Pipit *A. cervinus* are at present regarded as regular winter visitors while the Olive-backed *A. hodgsoni* is known as a scarce visitor. There is just one record of the Rosy Pipit *A. roseatus* (Grimmett *et al.* 1998; Kazmierczak 2000). Two species with at least a theoretical chance of occurring in the area are Buff-bellied *A. rubescens* (ssp. *japonicus*) and the Meadow Pipits—the latter only known as an accidental visitor to northern Pakistan.

The most straightforward species to exclude is Red-throated Pipit, which has a very different call. Besides, it is a heavily streaked bird on top as well as below. Excluded next are the Tree and Olive-backed Pipits. They have similar calls—a short, high-pitched but harsh *'beez'*, which to the trained ear is clearly separable from that of the Water Pipit. Besides, both species show a less distinct supercilium, a buffish tone to breast in contrast to whitish belly, more distinct streaks on the breast, a less distinct rear wing-bar made up of pale tips of greater wing-coverts, and pale legs. For Olive-backed Pipit the prominent whitish and blackish spots on rear ear-coverts would be present. Habitat-wise both species are more or less connected to at least some tree-cover and the Banni grassland is perhaps not the most likely habitat for at least significant numbers.

Of the remaining species all have calls that, in the field, are difficult to separate from those of Water Pipits—even for a trained ear. However, these species can be excluded in the field, due to plumage characters.

Buff-bellied Pipit is probably the most difficult species to exclude. This is a darker bird with more distinct streaks on the breast, with fewer streaks on the back and pale legs. It is a long-distance migrant from the eastern Palaearctic and a potential visitor to Gujarat (at least as a vagrant). Habitat-wise this species is reported to occur in, 'a variety of open, often wet habitats such as damp grasslands, stubble and ploughed fields, meadows, sea- and lakeshores, mudflats, river courses, *etc.*' (Alström & Mild 2003).

The Rosy Pipit will show a similar long and whitish supercilium but the species is much more distinctly streaked on both back and below. Besides, this species has pale legs. This breeder from the Himalaya and mountains in central China moves to lower altitudes during winter but it is not a long-distance migrant, i.e., it only descends to the plains of northern India. It could be a possible vagrant to Gujarat. In winter it favors 'wet habitats, such as riverbanks and lakeshores, edges of marshes, flooded meadows, paddy fields, *etc.*' (Alström & Mild 2003).

Finally, the Meadow Pipit has a similar call but it can be separated on many of the same characters as the Tree Pipit: less distinct supercilium, more streaks on back and below, and pale legs. It is a species from the western Palaearctic, breeding in

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northern and central Europe up to the very western part of Asia. It is not likely to be seen in Gujarat even as a vagrant.

Discussion

The occurrence of the Water Pipit in Gujarat is not entirely unexpected. The species is known as a regular winter visitor to the Indus Valley in neighbouring Pakistan (Alström & Mild 2003). Its habitat during winter is, 'wet freshwater areas, such as riverbanks, lakeshores, edges of marshes, wet and flooded meadows, sewage farms, reservoirs, dried fish-ponds and watercress beds and is only very rarely found along seashores' (Alström & Mild 2003). Following a good monsoon the Banni grassland turns into a mosaic of temporary wetlands in an otherwise dry landscape. This situation creates a wealth of habitat for a bird like the Water Pipit. During daytime a wintering Water Pipit is likely to be found in the transition zone between wet and dry areas. It can be a very discrete bird and even if it occurs in numbers, these will be spread over a vast area and difficult to find. Bumping into a pre-roosting concentration is the safest bet. It is always difficult to get good counts of dispersed species and to this end counts at roosting sites often reveal larger numbers than estimates from regular counts.

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— Short notes —

A substitute name for *Parus nipalensis* Hodgson, 1837

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Dickinson, E. C. 2009. A substitute name for *Parus nipalensis* Hodgson, 1837. *Indian Birds* 5 (1): 16.
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In a footnote to my recent article in *Indian Birds* entitled 'Hodgson's ornithological articles published in the *India Review* (1836–1837)' (Dickinson 2009), the primary homonymy in *Parus* between *Parus nipalensis* Hodgson, 1837, and *Parus* (*Suthora*) *nipalensis* Hodgson, 1837, was noted and it was suggested that an application to the International Commission for Zoological Nomenclature would follow. However, that is not needed.

Both names were proposed as names for species. The use of *Suthora* in brackets may not mean that Hodgson believed the small parrotbills formed a subgenus of *Parus* but that is the way that Article 6.1 of the International Code of Zoological Nomenclature (I.C.Z.N. 1999; hereinafter 'the Code') leads one to interpret Hodgson's name. That Article continues by explaining that a name, "interpolated in parentheses"…"is not counted as one of the words in the binomen or trinomen." This is the basis for seeing these two names as homonyms.

I therefore act here as First Reviser, under Art. 24.2.2 of the Code, in selecting the parrotbill name *Parus* (*Suthora*) *nipalensis* as the prior name thus assigning it priority over the name Hodgson used for a taxon now usually treated as a subspecies of *Parus major*. Thus we preserve the use of the name that is a recognised specific name (*Paradoxornis nipalensis*) and we need to replace the parid name.

To do this, no fresh name need be coined. The name *Parus major planorum* Hartert, 1905, is available from synonymy (see Dickinson *et al.* 2006) and should be adopted.

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[1] This paper, and all others in this series, can be downloaded from *www.repository.naturalis.nl*. It includes an Appendix specifically relating to Hodgson names and type material. The volume alluded to also includes several other papers on Hodgson and Blyth. Note Nos. 51, 52, 53, 54, 55 and 56 should all be of interest to Indian ornithologists.

Editor's note:
First Reviser: "The first author to subsequently cite names (including different original spellings of the same name) or nomenclatural acts published on the same date and to select one of them to have precedence over the other(s)."
Homonym: "In the species group: each of two or more available specific or subspecific names having the same spelling, or spellings deemed under Article 58 to be the same, and established for different nominal taxa, and either originally (primary homonymy) or subsequently (secondary homonymy) combined with the same generic name [Art. 53.3]."

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Record of the Great White Pelican *Pelecanus onocrotalus* from Uppalapadu, Andhra Pradesh, India

Nanjan Sheeba & Lalitha Vijayan

Sheeba, N. & Vijayan, L. 2009. Record of the Great White Pelican *Pelecanus onocrotalus* from Uppalapadu, Andhra Pradesh, India. *Indian Birds* 5 (1): 17–18.

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The Great White Pelican *Pelecanus onocrotalus* is a winter visitor to Africa and Asia with two distinct populations—one in eastern Europe and Asia, and the other in Africa (Crivelli 1984; Crivelli *et al.* 1991). It occurs in scattered colonies or as a migrant in many African countries (Kenya, Sudan and Morocco), Greece, Turkey, Iran; Black, Caspian and Aral Seas; Kazakhstan, Kuwait, India, and Vietnam (Crivelli *et al.* 1991; Jiguet *et al.* 2008). In India it occurs from Punjab to Assam (Ali & Ripley 1978), besides a single record from southern India (Grimmett *et al.* 1999). Ali (1960) recorded the nesting of the Great White Pelican in the Rann of Kachchh in 1960. However, Tiwari *et al.* (2003) reported the presence of first year juveniles along with adult Great White Pelican in the Kachchh region, but could not confirm breeding. Very few wintering records of this species are available from southern India—eight individuals were recorded at Vellimukkuchali swamp in Kerala (Jacob *et al.* 1995), an isolated record from Udupi district, Karnataka (Bhatta & Pushpalatha 2003), and a pair observed at Kolleru Lake, Andhra Pradesh (Taher & Mani 2008).

Sighting at Uppalapadu

Uppalapadu (16°16'26"N 80°21'58"E) is a village tank in Guntur district, Andhra Pradesh, which is listed as an Important Bird Area (IBA) by Islam & Rahmani (2004). It is also ranked for conservation priority and has been recommended as a Ramsar site (Vijayan *et al.* 2004). The tank receives water from the Thekkallpadu channel. Vegetation is mainly *Prosopis juliflora*. This wetland is characterised by earthen mounds in the middle of the tank. Taher (2007) gives a detailed description of the area. 46 species of waterbirds and 29 land birds have been recorded from Uppalapadu during 2006–2008 (*pers. observ.*). This habitat is used as a roosting, foraging and breeding ground by many species including the near-threatened Spot-billed Pelican *Pelecanus philippensis*, Oriental Darter *Anhinga melanogaster*, Black-headed Ibis *Threskiornis melanocephalus*, and Painted Stork *Mycteria leucocephala*. The peak population of birds varied in different seasons, with a maximum of 6,000 breeding birds during July–August and December–January (*pers. observ.*).

As part of the study on the Spot-billed Pelican, NS counted birds at several points along the dike at Uppalapadu. On 22nd July 2007, a single Great White Pelican was spotted sitting on the bund, which was devoid of vegetation. Its bright yellow pouch caught attention, as against the pinkish pouch of the Spot-billed Pelican. Its identity was clinched without any doubt when it stood up after 30 min., stretched its wings and leg simultaneously and preened its wing displaying distinctive black primaries and secondaries, fleshy pink leg and feet and yellowish webbed feet, as given by Ali & Ripley (1978).

Pattern of sighting of the Great White Pelican at Uppalapadu

Dates of observation	Duration of stay
22nd July 2007	Short visit
19th December 2007	Short visit
20th December 2007	Short visit
2nd January 2008	Roost
8th–9th January 2008	Halt
28th January 2008	Roost
11th–15th February 2008	Halt
24th February 2008	Short visit
28th February–1st March 2008	Halt
8th March 2008	Roost
10th March 2008	Roost
17th March 2008	Roost
21st March 2008	Roost
23rd–24th March 2008	Halt
29th March 2008	Short visit

After that first sighting, the species was next sighted only on 19th December 2007 when it sported pinkish breeding plumage, with brighter orbital skin and yellowish pouch. Malhotra (1991) observed the breeding of this species in November–December in Delhi, which is in contrast with the February–April record given in Ali & Ripley (1978). The dates of its subsequent sightings and duration of its stay at Uppalapadu are given in the table above. When this bird was observed for short durations in the day time and not observed after 30 min. of sunset or the very next day, it was categorised into 'short visit'; when it arrived in the evening and was observed after sunset, it was considered as 'roosting'; and when the stay was for the day time and the subsequent day, it was termed as 'halt'. Interestingly, a 'halt' was observed on rainy days. This observation shows that the bird might have been moving in and around Uppalapadu, probably up to Kolleru, as Taher & Mani (2008) sighted it at Kolleru in the same season.

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Breeding of Glossy Ibis *Plegadis falcinellus* at Vedanthangal Waterbird Sanctuary, southern India

C. Venkatraman

Venkatraman, C. 2009. Breeding of Glossy Ibis *Plegadis falcinellus* at Vedanthangal Waterbird Sanctuary, southern India. *Indian Birds* 5 (1): 18–19.

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Glossy Ibis *Plegadis falcinellus* a migratory and most widespread ibis species, breeds in scattered sites in the warm regions of Europe, Asia, Africa, Australia, and the Atlantic and Caribbean regions of the Americas.

Vedanthangal Waterbird Sanctuary (12°32'N 79°52'E) is one of the oldest sanctuaries in southern India attracting birds from last two centuries. It comprises a small village located in the north-western part of the Madhuranthagam taluk in Chingleput district of Tamil Nadu.

I have been monitoring waterbird populations at Vedanthangal Bird Sanctuary since 1992. In 2007, I recorded 212 Glossy Ibis here, when the lake was full from the north-east monsoon. Subsequently, Glossy Ibis numbers increased to 347 in January 2008 and to my surprise they started constructing nests. Adult birds were readily identified by their breeding plumage—reddish-brown bodies and shiny bottle-green wings, while non-breeders and juveniles have duller bodies. Nests were built exclusively on *Acacia nilotica* trees in the eastern part of the sanctuary and incubation started at the end of January 2008. Nests were built largely away from the nests of other breeding species namely Painted Stork *Mycteria leucocephala*, Spot-billed Pelican *Pelecanus philippinus*, Open-bill Stork *Anastomus oscitans*, Eurasian Spoonbill *Platalea leucorodia*, and Oriental White Ibis *Threskiornis melanocephalus*. In all 52 nests were found at the mean height of 3.82 m (±1.13 m) above ground level. The complete breeding behaviour could not be observed due to inaccessibility of the nests. A few sub-adults were noticed in May.

During 1990–1996, I had recorded 26–60 individuals of wintering Glossy Ibis, which used the sanctuary exclusively for roosting. There have been no conclusive breeding records of Glossy Ibis from Vedanthangal, only sight records (Kannan 1984; Shiromoney 1984; Sasikumar *et al.* 1991; Desai 1996; Praveen & Kumar 1996; Venkatraman 1996; Santharam 2000; Narayanan & Sathasivan 2002; Subramanya 2005; Thirumalai & Radhakrishnan 2005). Perusal of postings on the email group, Tamilbirds (http://in.groups.yahoo.com/group/Tamilbirds/) reveals that Sasikumar (4th December 2008) and Narayanan (18th December 2008) have reported an increase in the population of Glossy Ibis in recent years in the southern India, especially Kerala and Tamil Nadu. Sasikumar (*ibid.*) recorded a roosting population of nearly 8,000 individuals in Peria Kammai, Ramanathapuram, Tamil Nadu. One could argue that with the increased number of birdwatchers, sightings of birds have also increased, but overall, the Glossy Ibis population boom is due to a genuine increase in its population. For the past two years Vedanthangal, like other parts of Tamil Nadu, experienced unusually good rainfall resulting in a majority of the wetlands filling up. Subsequently, birds started moving from Vedanthagal to Karikili lake (10 km from Vedanthangal) to breed. Earlier only ducks and teals were known to breed there.

Since two years, the number of bird species breeding at Karikili has been generally increasing even though Vedanthangal has seen a decline in the numbers of breeding Little Cormorant *Phalacrocorax niger*, Grey Heron *Ardea cinerea*, Oriental White Ibis, and Eurasian Spoonbill. The resulting lack of competition for nesting sites at the latter may have encouraged Spot-billed Pelican and Painted Stork to breed in unusually larger numbers than the past. Finlayson *et al.* (2006) stated that due to climate change the populations of some species will decline, while others increase

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in both size and distribution. Probably, this could be the reason for the change in the population structure of many of the birds in recent years in Vedanthangal. Leslie (2001) and Kingsford & Norman (2002) suggest that successful breeding often requires exceptional flooding events that last long enough for completion of the breeding cycle. Hence, lack of competition and the instance of exceptional flooding could be the likely factors for the Glossy Ibis breeding first time in Vedanthangal.

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The Black Baza *Aviceda leuphotes* in Chennai: a review of sight records

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The Black Baza *Aviceda leuphotes* is represented on the Indian Subcontinent by two races of which *A. l. syama* is believed to be a winter visitor from the north-east that moves along the eastern seaboard to southern India and to Sri Lanka, where it is a rare and irregular winter vagrant (Naoroji 2006). Naoroji (2006) also mentions that there are a few sight records around Chennai and Point Calimere on the eastern coast, and the accompanying distribution map indicates that the birds are seen in Chennai, north of Chennai (Nellore?), and Point Calimere, besides other sites on the eastern coast on passage. However there appears to be a paucity of data on the sightings of the bird. In this note I have put together all my sightings along with a few reports that I had recorded in my notebook from Chennai.

I have seen the species 15 times in Chennai since December 1980 up till February 1997. With the exception of two, all sightings were in Guindy National Park. The two exceptional sight records were at a mango grove at Manali-Madhavaram in northern Chennai suburbs and at the Theosophical Society Estate.

The Black Baza is seen in Chennai between October and March. The earliest of these sightings was on 20th October (1990) and the latest on 19th March (1994). Tables 1–3 provide year-wise and month-wise summaries of my sightings. I have also incorporated six additional sightings recorded by others (Kannan (1985), Kumaran Sathasivam, S.Thyagarajan, C.S. Swaminathan, Geetha Jaikumar, M. Nanda Kishore and B. Rajashekar).

These tables indicate that the Black Baza is far from being a 'stray' visitor to the city as was suggested by the Wikipedia article on Black Baza (accessed on 23rd November 2008). It also suggests that the birds may not just be passage migrants as felt by Naoroji (2006) but are regular winter visitors with sightings in every month between October and March. There have been regular reports of this species at the Guindy National Park since the early 1970s by groups of birdwatchers (Selvakumar *et. al.* 1981). However, on perusal of some earlier literature, I came across the records by Jerdon from 'near Nellore' (1862; 1: 111) and the Madras Museum specimen procured from the city (date and exact locality not specified) – (Satyamurti 1970).More recently there have been sightings from the Sriharikota Island, Nellore district in the months of November (12th and 14th) and February (6th) (Manakadan et.al. in prep.).

Elsewhere, I have come across the baza in the Western Ghats:

- Mundanturai Tiger Reserve (Tirunelveli district, Tamil Nadu): 17th January 1988: 10–15; 17th January 1989: 9 (coincidentally

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Table 1. Year-wise sightings of the Black Baza in Chennai

Year	# Sightings
1980	1
1981	1
1982	2
1983	3
1984	1
1985	2
1986	3
1987	0
1988	2
1989	1
1990	2
1991	0
1992	0
1993	0
1994	1
1995	0
1996	0
1997	2

(Note: the years during which there are no sightings represent the period when the author was away from Chennai)

Table 3. Group-size distribution

Group size	1	2	3	4	?
Frequency	5	5	8	1	1

Table 2. Month-wise sighting frequency

Month	# Sightings
October	1
November	2
December	2
January	4
February	7
March	4
Total	20

both sightings were on the same date on two consecutive years and at the same spot—off Puckle's path; however, I am not too confident about the group size on the first occasion).

- Aralam Wildlife Sanctuary (Kannur district, Kerala): 10th March 2000: 3.
- Periyar Tiger Reserve (Idukki district, Kerala): 6th January 2008: 2.

My only sightings of this species in the north have been at the Aibheel Tea Estate in the Jalpaiguri Dist. of West Bengal on 14th April 2008 (4 birds) and on 15th April 2008 (2).

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Ramki Sreenivasan

Black Baza *Aviceda leuphotes*, Thattekad, Kerala, November 2008.

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Record of Slaty-breasted Rail *Rallus striatus* breeding in Dehradun, India

Pankaj Kumar & R. Suresh Kumar

Kumar, P. & Kumar, R. S. 2009. Record of Slaty-breasted Rail *Rallus striatus* breeding in Dehradun, India. *Indian Birds* 5 (1): 21–22.
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The family Rallidae, represented by 19 spp. in India—including rails, crakes, gallinule, coot and finfoot—are small to medium-sized birds mainly inhabiting reedy swamps, mangroves and paddy fields. A few of these species, specifically the rails and crakes, are notorious for their skulking habits and are rarely flushed, and are thus comparatively little known. One such species, the Slaty-breasted Rail *Rallus striatus* was observed in the Wildlife Institute of India (WII) campus located in Dehradun. This species was also observed to breed inside the campus and here we report on these observations. The record of this species is also of some significance considering it's patchy distribution range within India, and the fact that it was previously recorded only from eastern parts of the state of Uttaranchal (Rasmussen & Anderton 2005).

On 25th July 2007, around 1030 hrs, we saw a waterhen-like bird wading in a small streamlet flowing through the campus. On noticing us the bird quickly moved into the vegetation, only to return a little later. And, this time it, though conscious of our presence, continued to wade along the stream. The red colouration of the beak, the characteristic reddish brown colour of the head, the slaty-grey breast feathers, and the fine white barring on the bird identified it as a Slaty-breasted Rail *Rallus striatus* (Fig. 1). The rail moved over to a small rock along the watercourse and perching on it, started to preen.

WII campus is interspersed with a few perennial water sources and a small man-made lake, and along these watercourses dense stands of *Sapium sebiferum* grow and along some parts reeds of *Typha elephantina* occur, while the vegetation within the campus is marked by a luxuriant growth of sal *Shorea robusta* with a dense under-storey dominated by *Lantana camara* and *Jasminum multiflorum* bushes.

The rail was again seen at the same location on 1st August 2007 and to our great surprise it was with eight precocious chicks! The chicks were in down, black in colour, and appeared to have possibly hatched only few days ago. Over the next couple of days, the rail, with its chicks, was regularly sighted at the same location, during the late morning hours; the adult on the rock preening, while the chicks wading in the stream. Then, all of a sudden the rail family was not seen for several days, and we suspected the birds might have moved off to a different part of the stream. On 15th August 2007, a single rail chick, now larger, about the size of a quail *Coturnix* sp., was seen at the same location where the adult rail was first spotted. Interestingly, this chick appeared to be alone and already independent. Its beak was longer and reddish in colour, and the overall plumage was brown with dark brown streaks on the back as reported for young birds by Ali & Ripley (2001). The belly and wing had faint white barring, and the throat was buff white (Fig. 2).

Pankaj Kumar

Fig. 1. Slaty-breasted Rail *Rallus striatus* in Dehradun, India.

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The fate of the other chicks was not known and even along other parts of the stream there were no signs of the birds including the adult. Considering their skulking habits it is possible that we missed spotting the birds, however, we wondered whether the other chicks had been predated. The lone chick was repeatedly sighted for a few more days—it was last seen was on 22nd August 2007. Going by the severity of winter in Dehradun and the fact that many resident birds migrate locally from the campus, we suspected the rail had departed too. In the summer of 2008, we awaited the arrival of the Slaty-breasted Rail, hoping that it would breed again on the campus. And to our joy, a single adult Slaty-breasted Rail was seen at the same location along the stream on 28th June 2008 at 1245 hrs. Alas this was the only sighting in 2008. Ali & Ripley (2001) report that this species is resident, but moves about locally under the stress of drought or flood. Thus, this breeding record of the Slaty-breasted Rail in the WII campus may have been a result of such movements.

Within the WII campus seven other species of Rallids have been recorded previously, namely, Water Rail *Rallus aquaticus*, Baillon's *Porzana pusilla*, Brown *P. akool* and Ruddy-breasted Crakes *P. fuscata*, White-breasted Waterhen *Amaurornis phoenicurus*, Common Moorhen *Gallinula chloropus*, and Eurasian Coot *Fulica atra*. White-breasted Waterhen and Common Moorhen have been observed to regularly breed within the campus while the other species are only occasionally seen.

Pankaj Kumar

Fig. 2. Juvenile Slaty-breasted Rail *Rallus striatus*.

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Common Moorhen *Gallinula chloropus* in the diet of the African Catfish *Clarias gariepinus* in Keoladeo Ghana National Park, India

K. R. Anoop, K. S. Gopi Sundar, Bholu Abrar Khan & Sohan Lal

Anoop, K. R., Sundar, K. S. G., Khan, B. A. & Lal, S. 2009. Common Moorhen *Gallinula chloropus* in the diet of the African catfish *Clarias gariepinus* in Keoladeo Ghana National Park, India. *Indian Birds* 5 (2): 22–23.

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The Common Moorhen *Gallinula chloropus* is a widespread and common wetland bird species globally, also occurring commonly in India. There are very few observations of predation on this species (Bannor & Kiviat 2002). On 8th March 2009 we fished out a large African catfish *Clarias gariepinus* at Keoladeo Ghana National Park (KGNP) as part of a reconnaissance study on the diet of this invasive fish species. We retrieved a freshly eaten carcass of an adult Common Moorhen from the stomach of the fish. The fish measured 72 cm from snout to tail tip with a gape of 14.5 cm.

Fish predation on birds in freshwater habitats is not uncommon, though usually chicks are taken (Lagler 1956). Predation of adult waterbirds is commoner in marine habitats, which have larger fish (Glegg 1945, 1947; Straneck *et al.* 1983; Carlson *et al.* 2002). Common Moorhen mortality records by fish are very rare and are from outside India. Chicks have been recovered from stomachs of largemouth bass *Micropterus salmoides* (Bell & Cordes 1977), and one adult each has been recovered from the stomach of pike *Esox lucius* (Glegg 1947) and eel *Anguilla anguilla* (Glegg 1945).

The African catfish is a very widespread invasive fish species and is suspected to be a major threat to native fish fauna (Casal 2006; de Silva *et al.* 2009). It is an omnivore / predator that feeds mostly on fish (de Graaf & Janssen 1996), and birds have not been recorded in its diet before. The fish was first seen in KGNP in 2004 (BAK *pers. obs.*). It is thought to have been distributed to villagers in surrounding villages for pisciculture and is believed to have entered the park by accident. It is a hardy species that can survive dry seasons due to the presence of its accessory air breathing organs (de Graaf & Janssen 1996). It is possible that local fish species are being out-competed by this fast growing and rapidly reproducing invasive. Owing to the wide head of the African catfish, the bigger individuals are not eaten by waterbirds in the park; the Great White Pelican *Pelecanus onocrotalus* has been observed to choke on this species (BAK *pers. obs.*). This invasive

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species therefore appears to be a serious and new problem to KGNP's ecosystem owing to its potential to out-compete and / or crowd out local fish species thereby reducing the prey-base for waterbirds, and predating on waterbirds. An appraisal of the impact of the fish on local fauna is currently being planning.

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Vijay Sirdesai

Common Moorhen *Gallinula chloropus*

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The first breeding record of the Asian Brown Flycatcher *Muscicapa dauurica poonensis* in Rajasthan, India

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Sangha, H. S., Bhardwaj, G. S. & Mistry, D. 2009. The first breeding record of the Asian Brown Flycatcher *Muscicapa dauurica poonensis* in Rajasthan, India. *Indian Birds* 5 (1): 24–25.

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Mss received on 4th September 2008.

Distribution

The Asian Brown Flycatcher *Muscicapa dauurica poonensis* winters in peninsular India (primarily south of the Vindhya range), Sri Lanka, Andamans (at least South, Middle, associated islets, Barren and Narcondam islands) and Nicobars (at least Car and Central) in low country up to 1000 m. On passage the species has been recorded through much of the Indian Peninsula and rarely east to Meghalaya and north-east Bangladesh (Rasmussen & Anderton 2005).

It is a summer visitor to the Himalayan foothills from the Murree Hills (Pakistan) to Nepal and perhaps Bhutan, and locally in hills of central India, breeding at 1,200–2,600 m. A third disjunct population is resident (or summer visitor) and breeds locally in the Western Ghats and its associated ranges, and probably the Satpura Hills and Eastern Ghats ranges (Rasmussen & Anderton 2005).

In Gujarat it was recorded in the Dangs forest (Ali 1955), near Sasan in the Gir forest in March 1966 (Raol 1966), and on the grounds of Vijay Vilas Palace, Mandvi, on 21st–22nd November 1967 (Himmatsinhji 1968).

There are no documented records of its occurrence in Rajasthan prior to 2001 (Ali & Ripley 1996; Grimmett *et al.* 1998). However, one bird was recorded at Mount Abu, Sirohi district on 25th March 2001 (Sangha & Devarshi 2004); on 28th May 2002 another was observed in the Range Forest Office, Kotra, Udaipur district by Dhirendra Devarshi and HSS; and a third was present on 3rd July 2002 in the Forest Research Farm, Banki (Sisarma) in Udaipur district (Sharma 2002).

Breeding

The peninsular breeding range of the Asian Brown Flycatcher is poorly known (Rasmussen & Anderton 2005). Whistler & Kinnear (1932) presumed that a male (5th June 1929) and a female (1st June 1929), collected at 610 m in the Chitteri range (Tamil Nadu), were in their breeding quarters. Jackson (1971) found nests in March, April, and May, and observed young being fed in June in the Vandiperiyar-Peermade area (*c.* 914 m), Kerala. More recent breeding records are from the neighbourhood of Chennai (Tamil Nadu) where 'juvenile birds with spotted plumage' were seen on at least two occasions in July 1984 and 1990; from Rishi Valley, Chittoor district, Andhra Pradesh where juvenile birds were seen in July–August 1999 and June–July 2000; and from Peechi-Vazani Wildlife Sanctuary where a nest was found in March 1993 and a juvenile, with spots, seen in August 1991 (Santharam 2003). An adult was observed feeding a 'fledgling capable of flying' in Amla and Khokra forest blocks of the Gir Lion Sanctuary (Gujarat) on 28th May 1988 (Mundkur 1990). In Hyderabad, Andhra Pradesh, Pittie (2000) recorded a young bird in June. Probably based on Ghorpade's (1974) observations that it is an uncommon resident in Sandur, eastern Karnataka, Grimmett *et al* (1998) have presumed that it breeds there.

Breeding record from Rajasthan

This note documents a previously unpublished breeding location with aspects of the site, situation and construction of two nests in Rajasthan. There is no previous information on these nidification details from Rajasthan.

Two active nests were found in Poonga Talab area (24°04′N 74°34′E) near Dhariawad in Sitamata Wildlife Sanctuary, Rajasthan, in quite dense forest comprising teak *Tectona grandis*, bahera *Terminalia behlerica*, tendu *Diospyros melanoxylon*, dhak *Butea monosperma*, gurjan *Lannea corromandelica* and salar *Boswellia serrata*, with *Lantana camara* bushes dominating the middle level vegetation, and ponwar *Cassia tora* covering the ground. Both the nests were observed on 28th June, 3rd July and 18th July. We went to the site again on 9th August but did not see the birds.

A nest on a teak tree was *c.* 5 m above the ground and placed on the trifurcated forks of a branch *c.* 45 cm from the trunk of the tree. On 28th June and 3rd July the eggs were being incubated. Both parents were observed feeding three altricial nestlings in the nest on 18th July.

Nest of Asian Brown Flycatcher *Muscicapa dauurica* on teak.

The second nest was in the lower canopy of a bahera tree *c.* 5.5 m above the ground. It was placed on a bough and more or less wedged where it divided into four branches. On 28th June a bird was found incubating the eggs. On 3rd July both parents were observed feeding three chicks in the nest and on 18th July

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the family was seen *c.* 70 m away from the nest. Between 1525 hrs and 1556 hrs both the parents fed the chicks 14 times on 3rd July. During the period of observation on 3rd July, four faecal sacs were also removed.

Nest of Asian Brown Flycatcher *Muscicapa dauurica* on bahera.

In both the trees the nests were similar in size and structure. The loose and untidy cups were composed of grasses, petioles, small pieces of dead leaves, and fine rootlets and were copiously lined with spiders' webs. The two nests were less than 24 m apart from each other. The pair nesting in the bahera was sharing the tree with a breeding pair each of an Indian Golden Oriole *Oriolus kundoo* (in middle canopy) and a Black-headed Cuckoo-shrike *Coracina melanoptera* (in top canopy).

Although Ali (1999) erred in stating that the nesting of the Asian Brown Flycatcher was 'not yet recorded' in Kerala[1], Whistler & Kinnear (1932), Jackson (1971), Mundkur (1990), Pittie (2000), and Santharam (2003) have all separately indicated the breeding of the species from various parts of India. However, all have omitted details of breeding behaviour. Therefore, we have compared our observations with those given by various observers in Baker (1933). The first record of its breeding in India is that of Lt. B. A. G. Shelley (1894) who recorded it, along with Sgt. Kemp, in the Vindhya Range near Mhow (Madhya Pradesh) in June. With one exception they found all the nests on dwarf teak trees. Kemp described them as cups of moss and lichen, lined with roots and fibres and a few feathers, placed on horizontal boughs of small trees growing in forest nullahs. Davidson (1898) described the nest as a large, solid one, composed of green moss and lichen and with a few fibres and a few feathers, mostly orioles'. However, Brig. Gen. Bentham, who also collected nests from Mhow (Madhya Pradesh) in June and July, wrote to Baker (1933; 2: 217) that the birds bred on biggish trees about 30 feet (c. 9 m) or so from the ground and nests were made of moss, moss-roots, and lichen and lined with roots, and feathers.

Discussion

The two nests of Asian Brown Flycatcher in Sitamata were different from those described in Baker (1933). Shelley found the nests on 'dwarf teak trees' and Kemp (*in epist.* to Baker 1933) on 'small trees'. In Sitamata one nest was on a teak tree and another on a bahera tree. Shelley, and Kemp, found the nests in forest nullahs but in Sitamata the nesting trees stood on fairly flat and open land. Interestingly, both the nesting trees in Sitamata were quite close to the busy Pratapgarh–Dhariawad road, the teak being *c.* 4 m and the bahera only *c.* 3.20 m from it. Moreover, the Sitamata nests comprised grasses, petioles, small pieces of dead leaves, and fine rootlets. There was no moss or lichen on either. The nest on the teak tree was copiously bound on the outside with spiders' cobwebs—moss and lichen not being available at this altitude and climate. The Sitamata nests were lower (5 m & 5.5 m) than those described by Bentham (*c.* 9 m). The nests in Sitamata were less than 24 m apart whereas del Hoyo *et al.* (2006) have reported that three pairs in a plantation were spaced at a distance of not less than 500 m. Cramp & Perrins (1993) mention that the breeding population in India lives between *c.* 900 m and 1,800–1,900 m alt. in hill forests. However, in Sitamata the breeding birds were at *c.* 624 m.

The paucity of records indicates that the species is sparsely present in Rajasthan and possibly the birds found breeding in Sitamata and those recorded during March (Sangha & Devarshi 2004), and May and July (Sharma 2002) are resident or arrive in Rajasthan in March–April and depart by September–October like the birds in the Himalayas and the Vindhya Range, to their migrating grounds in southern India.

[1] This is really the oversight of R. Sugathan, who revised and enlarged, and J. C. Daniel, who edited, Ali's work.

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Sighting of Blue-throated Flycatcher *Cyronis rubeculoides* in Gujarat

Prasad Ganpule

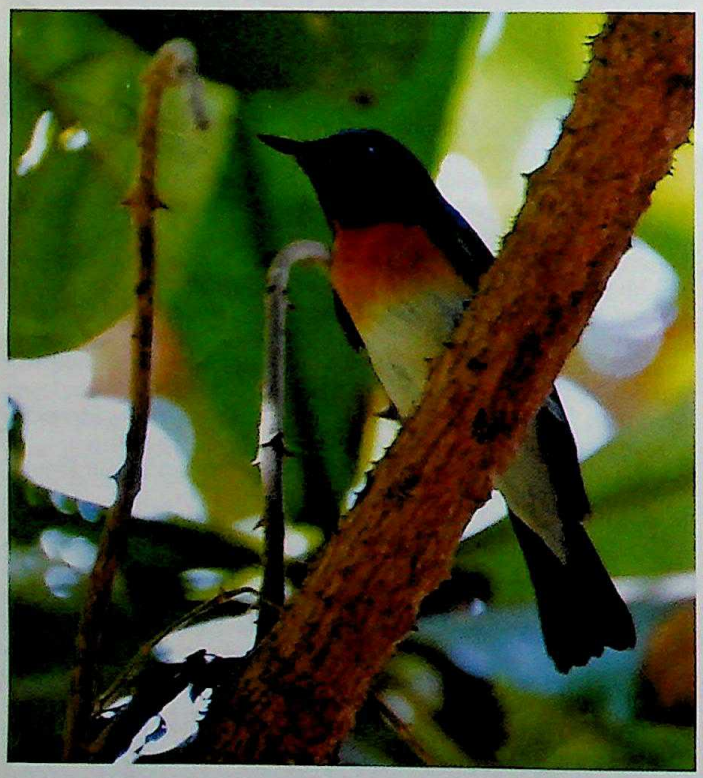
Ganpule, P. 2009. Sighting of Blue-throated Flycatcher *Cyornis rubeculoides* in Gujarat. *Indian Birds* 5 (1): 26.
Prasad Ganpule, C/o Parshuram Pottery Works, Opp. Nazarbaug Station, Morbi 363642, Gujarat, India. Email: *prasadganpule@yahoo.com*
Mss received on 31st January 2009.

On 26th October 2008 I was photographing a female Red-throated Flycatcher *Ficedula parva* on a tree behind my house in Morbi, Rajkot district, Gujarat (22 49′N 70 50′E) at approximately 1100 hrs. The Red-throated Flycatcher uses a branch on the tree behind my house as a perch quite regularly.

While photographing the bird, a very different type of flycatcher suddenly came on the tree. At first glance I thought that it was a Tickell's Blue-Flycatcher *Cyornis tickelliae*, but it was quite different, and since I had seen lots of Tickell's Blue-Flycatchers in Gir National Park (Gujarat), I realised that this bird was different. It had dark blue upperparts, much darker than *C. tickelliae*. It had a blue throat with a slight orange wedge, an orange breast with a white belly and vent. It had a slightly lighter blue on the crown. It was like a typical flycatcher, but perching high in the tree and making short sallies for insects.

I took photographs of the bird and looked up reference books. I identified the bird as a male Blue-throated Flycatcher *C. rubeculoides* (Fig. 1). It was seen only for two days and was probably a passage migrant. There are no records from western India in the reference books that I have access to (Grimmett *et al.* 1998; Kazmierczak 2000). I have never seen it here before and I do not know if there are any previous records for Gujarat.

This sighting also shows that the migration routes of small birds, though widely studied, remain a mystery even today.



Prasad Ganpule

Fig. 1. Blue-throated Flycatcher *Cyornis rubeculoides* in author's backyard in Gujarat.

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Editor's note: Perusal of published literature shows a trickle of Blue-throated Flycatcher sightings from western India. Rajasthan: Robson (1997) reported a sighting by Paul Holt at Bharatpur in February 1996, and Sangha & Naoroji (2003) reported a bird from the Thar Desert region of Kishangarh, Jaisalmer district. Gujarat: Jain *et al.* (2005) listed it from Ahmedabad, but this is an erroneous record for they meant the resident and common Tickell's Blue-Flycatcher, making the above, the first report of the species from Gujarat. Maharashtra: Several reports listed in Prasad (2004, 2006). Goa: Saha & Dasgupta (1992) took a female specimen on 23rd March 1973 and stated mysteriously, that it is "common in Goa during winter." Several sightings reported by Lainer (1999, 2004), who also questioned Saha & Dasgupta's (1992) statement about its commonness in Goa. Could it be possible that a small number of vagrants of the nominate Himalayan race migrate southward, to the southern Western Ghats, directly across western India?

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—Aasheesh Pittie

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Northern House Martin *Delichon urbica* in Arunachal Pradesh: a new species for north-eastern India

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Sangha, H. S., Naoroji, R. & Srivastava, K. 2009. Northern House Martin *Delichon urbica* in Arunachal Pradesh: a new species for north-eastern India. *Indian Birds* 5 (1): 27.

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On 19th October 2008 at 1410 hrs while birding close to the Indo-Tibetan Border Police (ITBP) outpost at Mipi (28°56′33″N 95°49′25″E), Upper Dibang Valley district, Arunachal Pradesh, we noticed a flock of *c.* 30 martins (Hirundinidae) flying over the Mathun River and surrounding fields. The initial impression, after a quick look through binoculars, was of Asian House Martin *Delichon dasypus*. While the birds were hawking in a loose association, photographs were taken, as images would prove more conclusive. Having secured some pictures we tried to get more details through binoculars. Fortunately for us the birds continued hawking and we were able to observe them for about 10–15 min.

On returning to the circuit house at Anini (28°47′34″N 95°54′05″E) HSS had a proper look at the photographs. After zooming in on some of the better photographs and comparing with illustrations of martins in Grimmett *et al.* (1998), and Kazmierczak (2000), HSS realised that the birds were Northern House Martin *Delichon urbica*, a species not earlier recorded from north-eastern India.

The identification of the martins was fairly straightforward. The very extensive white on the lower back, including the upper tail coverts (more extensive than illustrations in Grimmett *et al.* 1998; Kazmierczak 2000; Rasmussen & Anderton 2005; and Turner & Rose 1989) contrasted sharply with otherwise black upperparts. The large white rump patch was striking even at long range. The under parts were white. The black tail was short and moderately forked. The vent and under tail coverts were white and extending almost up to the end of the tail. The flight was fluttery with frequent long glides. The birds, in too many ways, matched Northern House Martins!

Ali & Ripley (1986) considered Northern House Martin and Asian House Martin as one species. Due to similarity of plumage and morphology with Asian House Martin its distribution and status is unclear (Turner & Rose 1989). Northern House Martin is a summer visitor to mountains of northern Afghanistan, Karakorum of Baltistan and Hunza, inner Himalaya in Ladakh, and Spiti in Himachal Pradesh. It occurs on passage through western parts of the Indian Subcontinent (east at least to western Nepal), a few (mainly first winter migrants) winter in or pass through the Western Ghats, and have been sight recorded in the Maldives and Lakshdweep (Rasmussen & Anderton 2005). The species is not listed in Choudhury (2006). Thus the birds at Mipi constitute not only the first record of the species from Arunachal Pradesh but also north-eastern India.

Harkirat Singh Sangha

Fig. 1. Northern House Martin *Delichon urbica*

The regional status of *D. u. lagopodum*, which has a larger white rump patch (including upper tail coverts) and shallower tail fork than the regional *D. u. meridionale*, is unresolved. It reportedly winters in Assam (Vaurie 1959) but most, if not all, specimens in the University of Michigan Museum of Zoology are *D. u. dasypus* (Rasmussen & Anderton 2005). However, *lagopodum* definitely winters to northern Myanmar, and so is likely to be present in the region (Rasmussen & Anderton 2005).

Harkirat Singh Sangha

Fig. 2. Northern House Martin *Delichon urbica*

In Myanmar, Smythies observed or collected the Siberian–Mongolian race *lagopodum* on numerous occasions in the Pegu Yomas, Karen Hills and Karenni. Tickell observed it at Moulmein, Livesey in Taunggyi and Roseveare in central Myanmar (Smythies 1986).

It is likely that the species winters or occurs during passage in north-eastern India.

As a family they are easy to identify, but the family includes closely related and similar species and in some plumages identification is not easy. So it is likely the species has been overlooked among the more numerous Hirundines in north-eastern India.

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First records of 'white-headed' Black Bulbul *Hypsipetes leucocephalus* from India

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Srinivasan, U., Dalvi, S., & Yobin, K. 2009. First records of 'white-headed' Black Bulbul *Hypsipetes leucocephalus* from India. *Indian Birds* 5 (1): 28–30.

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Mss received on 4th April 2009.

The Black Bulbul (Family Pycnonotidae, Order Passeriformes) has recently been split into two species—the Himalayan Black Bulbul *Hypsipetes leucocephalus* and the Square-tailed Black Bulbul *H. ganeesa* (Rasmussen & Anderton 2005; del Hoyo *et al.* 2005). These are distributed in South and Southeast Asia from Afghanistan in the west to Vietnam in the east (del Hoyo *et al.* 2005). Twelve subspecies (or races) of both species have been recognised in different parts of the species' range (Table 1; Ali & Ripley 1983; del Hoyo *et al.* 2005; Rasmussen & Anderton 2005). Three of these subspecies (*stresemanni*, *leucothorax* and *leucocephalus*) differ from the others in having a white head, throat and/or upper breast, contrasting strongly with a smoky blackish-grey or black body. The species is classified by the IUCN as of Least Concern (LC) because it has a wide geographical range and is common in some parts of its range (IUCN Red List). Three subspecies have been recorded from India. These are *psaroides* of the Himalaya and north-eastern Indian hills, *nigrescens* from parts of north-eastern India, and *ganeesa* from the Western Ghats (Ali & Ripley 1983; del Hoyo *et al.* 2005; Rasmussen & Anderton 2005). None of these races have white heads.

We (US and SD) conducted a bird survey from November 2008 to January 2009 in the community forests in Vijoynagar circle, which is situated east of Namdapha National Park, eastern Arunachal Pradesh (India). The area lies between the Patkai Hills to the south and the Mishmi Hills and the Himalaya to the north (Fig. 1). Myanmar surrounds the survey area on its east, north and south.

During the course of our survey, we had several sightings of a white-headed race of the Black Bulbul (Figs. 2 and 3) at two locations (Fig. 1). We tentatively identified these birds as belonging to the subspecies *stresemanni* because all birds we observed had entirely blackish-grey bodies without the paler grey tones seen in *leucocephalus* (del Hoyo *et al.* 2005). It is possible that the birds belonged to the subspecies *leucothorax*, which is supposedly 'inseparable' from *stresemanni* in the field (del Hoyo *et al.* 2005). Further, we tentatively identified these birds as belonging to the subspecies *stresemanni* because the white on the throat does not extend to the lower breast, as it does in the races *leucocephalus* and *leucothorax*. Details of these sightings are provided in Table 2. At both locations, the white-headed birds were part of large fluid flocks (up to 100 birds), of Black Bulbul *Hypsipetes leucocephalus psaroides*, the Himalayan black-headed race. The white-headed birds mixed freely with black-headed ones and foraged along with them. Black Bulbuls of both subspecies were found together in orchards of cultivated persimmon *Diospyros kaki* and were observed feeding on ripe persimmon fruits. The calls of *stresemanni* were very similar to those of *psaroides*. Prior to this, the known non-breeding distribution of *stresemanni* was in Thailand and Laos (del Hoyo *et al.* 2005) and, a single 1995 record from Bangladesh (Thompson & Johnson 2003).

These birds have been visiting the area for the last two winter

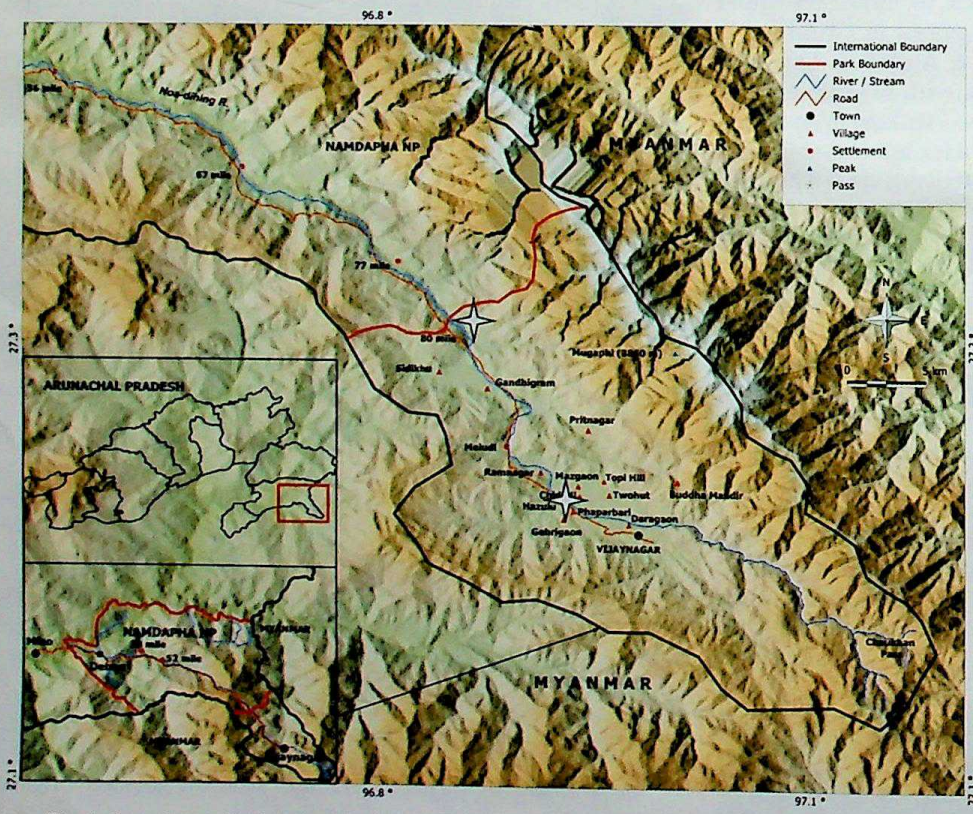

Fig. 1. Locations of 'white-headed' Black Bulbul *Hypsipetes leucocephalus* sightings in eastern Arunachal Pradesh. Source: Nature Conservation Foundation.

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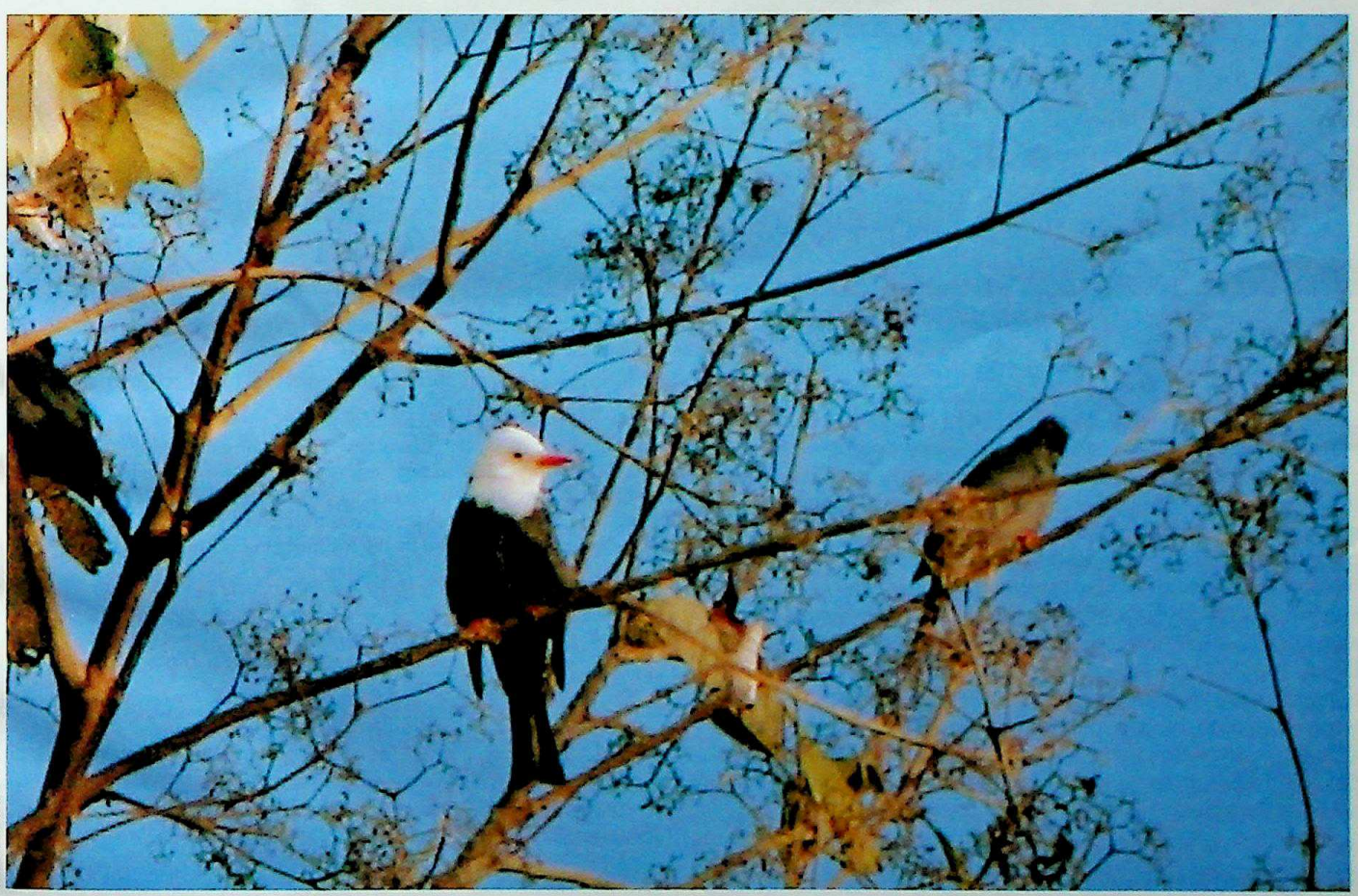
Table 1. Distribution of Black Bulbul *Hypsipetes leucocephalus* subspecies (del Hoyo *et al*. 2005; Rasmussen & Anderton 2005)

Subspecies	Distribution	White-headed
*humii**	Sri Lanka	No
*ganeesa**	Western Ghats of India	No
psaroides	NE Afghanistan, N Pakistan east to NE India, S Tibet, NW Myanmar, old records from C India	No
nigrescens	NE India (E Assam, Manipur), W Myanmar	No
concolor	E Myanmar, S China, Indochina	No
ambiens	NE Myanmar, S China	No
sinensis	Breeds S China, non-breeding W Thailand, Laos, Vietnam	No
stresemanni	Breeds S China, non-breeding Thailand, Laos, single record from Bangladesh (Thompson & Johnson 2003)	Yes
leucothorax	Breeds C China, non-breeding W, N & E Myanmar, N & NE Thailand, N Vietnam	Yes
leucocephalus	Breeds SE China, non-breeding E Myanmar, N Indochina	Yes
nigerrimus	Taiwan	No
perniger	S China, possibly N Vietnam	No

* Subspecies *ganeesa* of Ali & Ripley (1983) has been elevated to species status, and named Square-tailed Black Bulbul *Hypsipetes ganeesa* (Rasmussen & Anderton 2005; del-Hoyo *et al*. 2005). The subspecies *humii* of Ali & Ripley (1983) is now treated as a race of the Square-tailed Black Bulbul (Rasmussen & Anderton 2005; del Hoyo *et al*. 2005). del Hoyo *et al*. (2005) therefore, list ten races of Himalayan Black Bulbul *H. leucocephalus* and two of Square-tailed Black Bulbul *H. ganeesa*.

Table 2. Details of sightings of 'white-headed' Black Bulbul *Hypsipetes leucocephalus stresemanni*

Date	Time	Location	Latitude	Longitude	Altitude	Habitat	Number
27th December 2008	0830 hrs	Hazulu	27°12′25.8″N	96°57′26.2″E	992 m	Orchard, garden	4
2nd–3rd January 2009	All day	Musala	27°18′34.8″N	96°54′40.8″E	1,258 m	Orchard	*c*. 20



Umesh Srinivasan

Fig. 2. Black Bulbul *Hypsipetes leucocephalus stresemanni / leucothorax* in Changlang district, eastern Arunachal Pradesh.

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Fig. 3: Black Bulbul *Hypsipetes leucocephalus stresemanni / leucothorax* in a persimmon orchard, Changlang district, eastern Arunachal Pradesh. Note the presence of Black Bulbuls of the race *psaroides* to the left.

seasons—2007–2008 and 2008–2009 (KY). The Black Bulbul *H. l. psaroides* is well-known in the area, especially since it is a frequent raider of persimmon orchards, and has at least two local names (*Chamtakye* and *Nye-m-ne*) in the *Lisu* language. The local people who cultivate persimmon make some effort to drive these birds off fruiting trees. In addition, several biologists have been visiting the area in winter for the past six years and have never noted this subspecies, although the Himalayan *psaroides* is very conspicuous and commonly sighted in large flocks in the area (Aparajita Datta, Rohit Naniwadekar, and M. O. Anand—*pers. comm.*). It is highly unlikely therefore, that this species has been a regular winter visitor to the area and has been overlooked until now. Our sightings are the first records of a white-headed subspecies of the Black Bulbul from India and a significant winter range extension of this subspecies.

Acknowledgements

We thank Aparajita Datta for conceptual and logistic inputs at all stages of this project, and for reviewing a draft of this note. Thanks to Anyi and Rebecca Yobin for their warmth and hospitality in Hazulu; Phutaheyn Yobin and family for allowing us the run of their orchard. Mr Yogesh, Field Director, Namdapha, was very supportive and encouraging throughout the period of our field work. Akhi Nathany and Ngwa-akhi Yobin for their enthusiasm in the field. R. Raghunath prepared the map for this paper. Robin Abraham helped with sourcing reference material at short notice. This survey was part of a larger project supported by the Rufford Small Grants Program.

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— In the news[1] —

Compiled by Praveen J.

Barriers to migration

On 9th May 2009, thousands of people around the world attended World Migratory Bird Day (WMBD) events, which highlighted the barriers birds face during their long journeys. BirdLife Partners around the world are taking part, and are involved in joined up conservation projects to reduce threats faced by migratory birds. The theme for this year's WMBD—Barriers to migration—aims to raise awareness of some of the obstructions birds face during their migration. Apart from the innumerable natural obstacles faced, they also have to maneuvere around multitudes of man-made obstacles like power lines, wind farms, television and mobile phone transmission masts, glass windows, tall buildings, and other structures. These man-made structures cause bird collisions that could result in fatalities. Many birds, especially those that migrate at night, do not recognise these new obstacles and subsequently collide with power lines, or crash into glass windows. One of the most susceptible types of migrants are soaring birds like raptors. These birds are funneled, in thousands each year, along predictable routes, avoiding large bodies of water and high mountains. Effects of man-made barriers in these migration bottlenecks is very high. BirdLife's Migratory Soaring Birds project aims to address these threats, as well as habitat alteration, pollution, and illegal hunting, by working with key economic sectors to better understand the underlying causes of the threats to soaring birds, and develop best practice guidelines. This will be achieved through regional awareness raising and training, combined with six pilot projects in partnership with the key stakeholders across the Middle East and north-eastern Africa. *Courtesy: www.birdlife.org.*

Birdfair/RSPB Research Fund for Endangered Birds

The RSPB invites applications for funding from the 2009 Birdfair/RSPB Research Fund for Endangered Birds, which will remain open until 30th September 2009. This fund provides assistance of up to $2,000 to researchers working on birds listed by IUCN as Endangered, Critically Endangered, or Data Deficient. Successful research projects will be intimated by 30th December 2009. Application forms may be downloaded from the RSPB website: www.rspb.org.uk/ourwork/science/international/smallgrants/endangeredbirdgrants.asp.

From the field

Spring migration is in full swing and a whole lot of birds on passage are being reported from seemingly unlikely locations. Add to that the extra long weekends this year! Most birders are out in the field with their binoculars and cameras—a lot is happening around. Ravi Potluri and others reported a checklist of more than 200 species from a birding tour in Bhutan between 2nd and 10th April 2009 with sightings of Satyr Tragopan *Tragopan melanocephalus*, Himalayan Monal *Lophophorus impejanus*, Blood Pheasant *Ophrysia superciliosa*, Rufous-necked Hornbill *Aceros nipalensis*, Fire-tailed Myzornis *Myzornis pyrrhoura*, Cutia *Cutia nipalensis*, Yellow-rumped Honeyguide *Indicator xanthonotus*, Spotted Laughingthrush *Garrulax ocellatus* and Slender-billed Scimitar-Babbler *Xiphirhynchus superciliaris* (*Courtesy: DelhiBird*). About 20 Black-tailed Godwits *Limosa limosa* and one Lesser Sand Plover *Charadrius mongolus* were recorded on 9th May 2009 from Ambazari Lake in Nagpur by Rohit Chakravarty, presumably on passage (*Courtesy: birdsofnagpur*). Raju Kasambe recorded Black Drongo *Dicrurus macrocercus* attacking and trying to kill a small warbler—which escaped!—at the same location on 1st May 2009 (*Courtesy: nagpurbirds*). K. B. Sadananda photographed a Pied Tit *Parus nuchalis* at Cauvery Wildlife Sanctuary, Karnataka in January 2009, a confirmed sighting in southern India after close to a decade (*Courtesy: BngBirds*). Anand Arya and others reported a Baillon's Crake *Porzana pusilla* at Okla Bird Park, Delhi on 1st May 2009 (*Courtesy: DelhiBird*). Mandar Khadilkar reported more than 300 spp., on an 18-day tour of north-eastern India in the first quarter of March 2009 with sightings of Jerdon's Babbler *Chrysomma altirostre*, Lesser Grey-headed Fish-Eagle *Ichthyophaga humilis*, Blue-naped Pitta *Pitta nipalensis* from Kaziranga; Lesser Shortwing *Brachypteryx leucophrys*, Rufous-breasted Blue Flycatcher *Ficedula hyperythra* from Panbari; White-winged Duck *Cairina scutulata* at Nameri; Bugun Liocichla *Liocichla bugunorum*, Rusty-fronted Barwing *Actinodura egertoni*, Bhutan Laughingthrush *Garrulax imbricatus*, Ward's Trogon *Harpactes wardi*, Gold-breasted Tit-Babbler *Alcippe chrysotis*, Grey Peacock-Pheasant *Polyplectron bicalcaratum*, Rufous-necked Hornbill *Aceros nipalensis*, Beautiful Nuthatch *Sitta formosa*, Tibetan Siskin *Carduelis thibetana* from Eaglenest, Himalayan *Buteo burmanicus* and Upland Buzzard *B. hemilasius* from Sangti valley; Alpine Accentor *Prunella collaris* from Sella Pass; Yellow-rumped Honeyguide at Dirang and many other goodies (*Courtesy: BirdsofBombay*). On 1st May 2009, E. S. Praveen recorded a massive, 1,000-strong Wood Sandpiper *Tringa glareola* flock at Enamavu, Kerala—perhaps congregating before migration (*Courtesy: KeralaBirder*). Vijay Mohan Raj reported a Speckled Piculet *Picumnus innominatus* from Dandeli, Karnataka on 8th April 2009 (*Courtesy: Bngbirds*). Bindu Kapadia reported Satyr Tragopan *Tragopan melanocephalus*, Broad-billed Flycatcher-Warbler *Tickellia hodgsoni* and White-browed Tit-Babbler *Alcippe vinipectus* at Neora Valley in Darjeeling Hills during 14th–22nd March 2009 (*Courtesy: DelhiBird*). Shashank Dalvi and Atul Jain reported Hodgson's Frogmouth *Batrachostomus hodgsoni* in Eaglenest, Arunachal Pradesh in late March 2009 (*Courtesy: DelhiBird*). Sumit K. Sen reported Eyebrowed Thrush *Turdus obscurus*, Black-browed Reed Warbler *Acrocephalus bistrigiceps* and Western Crowned Warbler *Phylloscopus occipitalis* from Kolkota in April 2009, all first records for the city (*Courtesy: www.kolkotabirds.com*). L. Namassivayan reported more than 100 nests of Small Pranticole *Glareola lactea* from Malampuzha dam in Kerala on 24th April 2009. This is the largest nesting colony of this species in Kerala (*Courtesy: www.hindu.com*). Garima Bhatia and friends reported a Rusy-tailed Flycatcher *Muscicapa ruficauda*, on passage, from Nandi Hills, Bangalore on 10th April 2009 (*Courtesy: Bngbirds*). On 6th April 2009, Charlie Moores and Mike Prince recorded Pied Thrush *Zoothera wardii*, Sulphur-bellied *P. griseolus* and Hume's Warbler *P. humei* at the same location (*Courtesy: OrientalBirding*). Bill Harvey reported Bengal Florican *Houbaropsis bengalensis*, a nesting female Great Pied Hornbill *Buceros bicornis*, Yellow-breasted *Emberiza aureola* and Black-faced Buntings *E. spodocephala*, Himalayan Rubythroat *Luscinia pectoralis* and Red-capped Babbler *Timalia*

[1] For the period 15th March–15th May 2009.

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pileata from Kaziranga, Assam, 2nd–3rd March 2009 (*Courtesy: OrientalBirding*). Jagmohan Garg photographed an immature Watercock *Gallicrex cinerea* in Uppalapadu, Andhra Pradesh on 31st March 2009 (*Courtesy: bsap_online*). Prashanth Badarinath reported four Blue-winded Parakeets *Psittacula columboides* in Bilikal State Forest in Karnataka, which is about 60 km away from the nearest habitat for the species (*Courtesy: Bngbirds*). Sandeep Das recorded a Greater Spotted Eagle *Aquila clanga* stealing the prey of a Peregrine Falcon *Falco peregrinus calidus* at Adat Kole, Kerala on 15th March 2009 (*Courtesy: KeralaBirder*). Santosh Martin reported the presence of 200 Demoiselle Cranes *Grus virgo* at Sirguppa beside the Tungabhadra River while Vijay Mohan Raj reported about 40 at Hidkal dam—both locations in northern Karnataka (*Courtesy: BngBirds*). David Raju reported close to 300 spp. during a 15-day trip in mid-March 2009 to Nainital-Corbett and surroundings. The list includes Cheer Pheasant *Catreus wallichii*, Spotted-winged Grosbeak *Mycerobas melanozanthos* and Black-throated Accentor *Prunella atrogularis* (*Courtesy: KeralaBirder*).

A wader atlas for Africa-Western Eurasian region

The *Atlas of wader populations in Africa and Western Eurasia* is a milestone publication presenting the current knowledge of the numbers, distribution and movements of waders in the Africa–Western Eurasia region. Compiled over a decade, the *Atlas* is beautifully illustrated and provides maps, trends, and a wealth of detailed information on this remarkable group of birds. This *Atlas* is the latest in a line of flyway atlases that clearly demonstrate the need for international collaboration in the conservation of migratory birds. It brings together, for the first time, all the information that might be needed to act for the conservation of wader species in the African–West Eurasian region. Waders are one of the most migratory groups of birds and successful conservation demands a strongly international approach. Data provided by thousands of experts, most of them volunteers, from over 80 countries, have been combined with published results of bird ringing and national bird atlases. These data are presented on precise maps showing the population boundaries as well as areas used during breeding and non-breeding seasons, and key sites at every stage of a species' life cycle (*Courtesy: www.wetlands.org*).

Fighting extinction of vultures—action in Gujarat

Taking a serious view of the disappearing vultures in the state, the Gujarat Environment and Ecology Research Foundation (GEER Foundation) has sought greater involvement of naturalists and wildlife enthusiasts in the conservation of endangered vultures. At a meeting held in Gandhinagar, it was proposed to defer the vulture census till early next year when the weather would be more conducive for the exercise. The conservationists invited for the meeting suggested a change in the method of conducting the census, which is also being considered by the forest department. According to information obtained under the Right to Information Act, the forest department has spent eighty-four lakhs Rupees on vulture conservation through GEER Foundation in the last five years! Even though the vulture census figures are alarming, resulting in an outcry from the state's conservationists, it is worth mentioning that Gujarat is perhaps the only state that has such a method in place to locate vulture colonies, study nesting habits and an elaborate conservation plan. In Gujarat, Birds Conservation Society for Gujarat (BCSG) has a special vulture cell with volunteers dedicated to their protection. BCSG now has volunteers all over the state creating fenced feeding sites for vultures, where carcasses are dumped for vultures to feed on (*Courtesy: http://epaper.dnaindia.com*).

Migratory birds test negative for avian influenza

Over 500 swab samples collected so far from migratory birds under an international surveillance project on avian influenza, initiated in the Koonthankulam Bird Sanctuary in Tamil Nadu and Chilika Lake in Orissa, in December 2008, have tested negative for the highly pathogenic avian influenza (HPAI) H5N1 strain, according to the BNHS. The project was part of a global programme to study the ecological habits of water birds, the interaction among wild and domestic birds, movement of avian influenza viruses and other pathogens in the Central Asian Flyway. The H5N1 strain that caused deaths in domestic poultry and birds in India and in many other countries in Asia, Africa and Europe since 2003 was the focus of the study. Under the project, ten Bar-headed Geese *Anser indicus*, six Northern Pintail *Anas acuta* and four Garganey *A. querquedula* were fitted with specially designed satellite transmitters in Tamil Nadu to study their migratory movements. Some other bird species were fitted with the transmitters in Orissa. Using global positioning system, the bird movements were tracked to enable scientists to determine whether there was any relation between bird locations and (HPAI) H5N1 outbreaks along migratory pathways. The study was jointly undertaken by the Union Ministry of Environment and Forests, Ministry of Agriculture with technical inputs from the Food and Agriculture Organization of the United Nations (FAO)-India, EMPRES-Wildlife Unit - Rome, BNHS, Wetlands International, and experts in bird capture and satellite telemetry from the United States Geological Survey. Scott Newman, Animal Health Officer, FAO, is the international coordinator for the project and Dr S. Balachandran, BNHS is the national coordinator in India (*Courtesy: www.hindu.com*).

Rhys Green awarded the Godman-Salvin Medal

An RSPB research scientist has received a rare honour for his work protecting threatened bird species. The British Ornithologists' Union (BOU) has awarded Rhys Green the Godman-Salvin Medal—making him only the 24th recipient in nearly 90 years. The honour came at the recent BOU conference and celebrates his work studying the effects of development, farming, and climate change on bird populations. Previous recipients of the medal have included pioneering ornithologist and founder of the World Wildlife Fund, Max Nicholson; current BOU president and Royal Warden of the Swans, Professor Christopher Perrins and Henry Witherby, author of *The handbook of British birds*. BOU have awarded it to Rhys because of his longstanding work with the RSPB and in particular his studies with Stone Curlews. Rhys has contributed both in publishing the science and implementing the conservation action with the RSPB.

Rhys Green has been a special friend of India, since his participation in the conservation work of critically endangered species like the Jerdon's Courser *Rhinoptilos bitorquatus* and the *Gyps* spp. vultures. *Indian Birds* and the New Ornis Foundation congratulate Rhys on this happy occasion! (*Courtesy: www.rspb.org.uk.*)

Errata

Indian Birds Volume 4 Number 5 (September–October) 2008
Pages 163–164: the photographs (Figs. 1–4) are all by Raghavji Balar and not by Pravin Indrekar, as mentioned. The error is regretted.
Page 174: the photograph was taken in Nagaland and not the Andamans, as mentioned.

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Aims & Objectives

- To publish a newsletter that will provide a platform to birdwatchers for publishing notes and observations primarily on birds of South Asia.
- To promote awareness of birdwatching amongst the general public.
- To establish and maintain links/liaison with other associations or organized bodies in India or abroad whose objectives are in keeping with the objectives of the Trust (i.e. to support amateur birdwatchers with cash / kind for projects in ornithology).

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Front cover: Black-headed Munia *Lonchura malacca*.

Photographer: Rakesh Dhareshwar

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Ornithological literature from South Asia[1] and Tibet—2007

Aasheesh Pittie

Pittie, A. 2009. Ornithological literature from South Asia and Tibet—2007. *Indian Birds* 5 (2): 34–45.
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[1] South Asia includes Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka, the Maldives.

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Abbreviations

CBCN = Ceylon Bird Club Notes.
J. Bombay Nat. Hist. Soc. = Journal of the Bombay Natural History Society.
NLBW = Newsletter for Birdwatchers.
Zoo's Print J. = Zoo's Print Journal.

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More news on the *Acrocephalus* warblers at Kanha Tiger Reserve

David Raju, S. Balachandran, Praveen J., C. R. Sarath & Mike Prince

Raju, D., Balanchandran, S., Praveen J., Sarath, C. R., & Prince, M. 2009. More news on *Acrocephalus* warblers at Kanha Tiger Reserve. *Indian Birds* 5 (2): 46–48.

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Further to the note by Raju *et al.* (2008), on the sighting of a possible Large-billed Reed Warbler *Acrocephalus orinus* from Kanha Tiger Reserve (KTR) in April–May 2008, we were able to trap the species in mist nets in April 2009. Here we present our findings, with morphometric data.

The warblers in question arrived in KTR, at the same spot they frequented in 2008, on 21st March 2009 (DR & SCR), and were frequently monitored by DR and his colleagues. The birds generally behaved as they had last year, including fanning their tails intermittently. Three birds were mist-netted on 4th April 2009 by SB of BNHS (Fig. 1), relevant biometrics obtained, photographs taken, and the birds ringed and released. SB, with his 28-year experience of handling several thousand Blyth's Reed-Warbler *Acrocephalus dumetorum* and other *Acrocephalus* spp., in various parts of India, as part of the BNHS ringing programme, could not find any morphological characters that were distinctive in the trapped birds, from those of a Blyth's Reed-Warbler. Table 1 summarises the biometrics of the captured birds along with the known biometrics of Large-billed *A. orinus* and Blyth's Reed-Warbler. Three known Large-billed Reed-Warbler specimens

Acrocephalus warbler—wing formula

Photos by: *S. Balachandran*

Acrocephalus warbler

are labeled 'Thailand' (Round *et al.* 2007), 'Type' (Bensch & Pearson 2002) and 'Tring' (Pearson *et al.* 2008). Birds from KTR are identified by the last two digits of their BNHS ring (e.g., Z19457). Biometrics are also provided for Blyth's Reed-Warbler, compared by Round *et al.* (2007), are labeled 'PDR', and Bensch & Pearson (2002), labeled 'B&P'. Along with this, we also provide the measurements given in Svensson (1992), labeled 'LS', and Ali & Ripley (2001), labeled 'SA & SDR'.

Based on the three known specimens of Large-billed Reed-Warbler, Pearson *et al.* (2008) provide the following in-hand criteria for distinguishing them from Blyths' Reed Warbler.

1. A more rounded wing, with wing-point at 4th or 5th primary and 5th primary emarginated.
2. A larger bill (length to skull >19 mm; width at rear of nostril >4.5 mm).
3. A longer tail (>55 mm), and larger tail/wing ratio (>90%, compared with <85% in Blyth's Reed-Warbler).
4. A slightly longer tarsus (>23 mm, but potentially overlapping).
5. A longer hind claw (>7 mm).
6. Distinctly broad-tipped primaries and more point-tipped rectrices.

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Table 1: Biometrics of Large-billed *A. orinus* and Blyth's Reed Warbler *A. dumetorum*, and the birds from Kanha Tiger Reserve (NA = Not Available, JU = Juvenile, AD = Adult. All measurements in mm)

	Large-billed Reed Warbler			Warbler from KTR			Blyth's Reed Warbler					
	Thailand	Type	Tring	#57	#58	#59	PDR	B&P	LS		SA & SDR	
									Min	Max	Min	Max
Wing	64	61	59	64.5	61.5	61	61.2	62.2	58	65	59	66
Tail	60	57	55	57	54	56	51.9	51	NA	NA	NA	NA
Bill to skull	20.6	19.5	20	16.5	17	17	16.7	17.5	15.3	17.6	15	18
Hind claw	7.5	7.2	7.3	5.5	5	5	5.2	5.2	NA	NA	NA	NA
Tail–wing ratio	0.94	0.93	0.93	0.88	0.88	0.92	0.82	0.82	0.74	0.86	NA	NA
Bill–wing ratio	0.32	0.32	0.34	0.26	0.28	0.28	0.28	0.28	NA	NA	NA	NA
Tarsus	NA	23.5	24.5	21.5	21	21.5	NA	22.3	NA	NA	21	23
Bill to rear nostril	NA	12.2	NA	12	11.5	11.5	NA	11	NA	NA	NA	NA
Bill width	4.8	4.6	4.7	NA	NA	NA	4.2	4.2	NA	NA	NA	NA
Hallux	NA	8.5	NA	NA	NA	NA	NA	7.1	NA	NA	NA	NA
Outer retrices to tail tip	6.7	9	NA	NA	NA	NA	5.7	5.7	NA	NA	NA	NA
Weight	NA	NA	NA	13	11.5	12	NA	NA	NA	NA	NA	NA
Age	NA	NA	NA	JU	AD	JU	NA	NA	NA	NA	NA	NA

The Kanha birds (Figs. 2 & 6) had emarginations on p3 and p4 (instead of p5) and the wing-point was at p4. Bill length, tarsus and hind claw measurements fell well within the range of Blyth's Reed-Warbler. Primary tips and retrices did not match with the expected shape of Large-billed Reed-Warbler feathers (see Figs. 3 & 4 in Bensch & Pearson 2002). The only over-lapping feature was the longer tail (>55mm for two of the Kanha birds), and hence, a tail/wing ratio almost approaching that of a Large-billed Reed-Warbler (0.92 in one bird & 0.88 in the other two birds). It was perhaps the long tail coupled with the high tail/wing ratio that gave an impression of a short-winged *Acrocephalus* spp., in all the pictures made in 2008, leading Raju *et al.* (2008) to suspect that the birds could have been Large-billed Reed-Warblers.

SB conducted another mist-netting session at Point Calimere in southern India, where several Blyth's Reed-Warblers have been caught in the past. Four birds were trapped on 22nd April 2009; none showed a wing formula or biometrics that matched those of a Large-billed Reed-Warbler.

Therefore it may be concluded that the Reed-Warblers recorded at KTR in 2008 and 2009 were not Large-billed Reed-Warblers. However, it is not clear why the tail lengths of all three specimens exceeded the known range for the Blyth's Reed-Warbler. Assuming these were Blyth's Reed-Warblers, does it mean that greater tail-wing ratios, and longer tails, are unreliable features for separating Large-billed Reed-Warblers from other *Acrocephalus* reed-warblers?

Acrocephalus warbler—tail feathers

Photos by: *S. Balachandran*

Acrocephalus warbler—claw and undertail

Acrocephalus warbler—wing and tail

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Acrocephalus warbler—wing formula

Acrocephalus warbler—bill and face

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Cattle Egret *Bubulcus ibis* preying on Indian spiny-tailed lizard *Uromastyx hardwickii* in Kachchh

Kamlesh K. Maurya, I. P. Bopanna & Sutirtha Dutta

Maurya, K. K., Bopanna, I. P., & Dutta, S. 2009. Cattle Egret *Bubulcus ibis* preying on Indian spiny-tailed lizard *Uromastyx hardwickii* in Kachchh. *Indian Birds* 5 (2): 48–49.

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Mss received on 28th November 2008.

We would like to report here an instance of Cattle Egret *Bubulcus ibis* preying on Indian spiny-tailed lizard *Uromastyx hardwickii* in Kachchh (Gujarat, India). These observations were made in July–August 2006, during the egrets' breeding season.

After a span of two years there was heavy rainfall in Kachchh. By July Cattle Egret had attained their breeding plumage. The Cattle Egret is gregarious and associates closely with grazing animals. In the grasslands of Daun, more than ten herds of cattle have been observed per day, each herd comprising nearly 100–150 animals.

On 16th June 2006 at 0700 hrs, we reached the hide from where we were observing the behaviour of the Indian spiny-tailed lizard. Subsequently we spotted a large herd of cattle at 0900 hrs, along with half a dozen Cattle Egrets that were associated with the herd. At this time, some of the lizards were basking while others had started foraging (Fig. 1), but after being disturbed by the cattle they scampered towards their burrows.

We followed the cattle to see the response of Indian spiny-tailed lizard, when we spotted a Cattle Egret hunting and feeding on Indian spiny-tailed lizard (Fig. 2).

We briefly describe how the Cattle Egrets hunted the lizards. An egret walked steadily towards a lizard, darted forward a short distance, and made a quick stab at it. If the prey was a hatchling or a juvenile, it was swallowed easily. If it was a larger individual, the egret jabbed at it for a few minutes and then started feeding.

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Both: I. P. Bopanna

Fig. 1. Sub-adult Indian spiny-tailed lizard *Uromastyx hardwickii* comes out from the den for foraging and basking.

Fig. 2. Cattle Egret *Bubulcus ibis* feeding on an Indian spiny-tailed lizard *Uromastyx hardwickii*. Photo by: I. P. Bopanna.

All lizards were swallowed head-first.

We found that the Cattle Egret feeds commonly on the Indian spiny-tailed lizard during its breeding season. Cattle Egret preyed more on hatchlings (70%, N=10) than on juveniles and sub-adult (30%) or adult lizards (0%). Indian spiny-tailed lizards breed in late summer and are abundantly encountered in the monsoon. Nearly 70% of the population of these lizards, during monsoon, is composed of juveniles and hatchlings (Dutta & Jhala 2007). Being poikiothermal, they exhibit sloppy movements in the cooler ambient temperature of this season. All these factors might be contributing to a higher predation of smaller size-classes of the Indian spiny-tailed lizard by the Cattle Egrets. We have also observed Short-toed Snake-Eagle *Circaetus gallicus* trying to hunt Indian spiny-tailed lizard (Table 1).

Active insects that are disturbed by their grazing hosts form a major prey base for Cattle Egrets, which mostly feed on grasshoppers, crickets, spiders, flies, frogs, and moths (Ali & Ripley 1978). It has been calculated that an individual Cattle Egret can obtain up to 50% more food, and use only two-thirds as much energy catching it, by associating with cattle, as well as with other large ungulate species (Telfair 1994; Hancock & Elliott 1992). Thus it is an opportunistic and non-competitive feeder. We however believe that there has been no previous report of Cattle Egret preying on Indian spiny-tailed lizard.

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Table 1. Observations of Cattle Egret *Bubulcus ibis* predating on Indian spiny-tailed lizard *Uromastyx hardwickii* in Kachchh

Date July–August 2006	Time	Predator	Prey categories			Success	Remarks
			Hatchling	Juveniles & Sub-adult	Adult		
16th	0940	Short-toed Snake-Eagle	1	—	—	No	Trying to catch
16th	1030	Cattle Egret (n=3)	1	—	—	Yes	
17th	0900	Cattle Egret (n=2)	1	—	—	Yes	
22nd	0830	Cattle Egret (n=1)	1	—	—	Yes	
22nd	1200	Cattle Egret (n=1)	1	—	—	Yes	
25th	1000	Cattle Egret (n=1)	1	—	—	Yes	
25th	1120	Short-toed Snake-Eagle	—	—	1	No	Trying to catch
26th	1310	Unidentified raptor	—	—	1	No	Attacking
26th	1050	Cattle Egret (n=2)	1	—	—	Yes	
27th	1345	Cattle Egret (n=3)	1	—	—	Yes	
27th	1350	Cattle Egret (n=1)	—	1	—	Yes	
27th	1450	Cattle Egret (n=1)	—	1	—	Yes	
28th	1140	Cattle Egret (n=1)	—	1	—	Yes	
2nd	1200	Unidentified raptor	—	—	1	No	Attacking
5th	1330	Unidentified raptor	—	1	—	No	Attacking

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Occurrence of the White-bellied Sea Eagle *Haliaeetus leucogaster* in inland waters

K. M. Sadvi

Sadvi, K. M. 2009. Occurrence of the White-bellied Sea-Eagle *Haliaeetus leucogaster* in inland waters. *Indian Birds* 5 (2): 50.
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Mss received on 17th January 2009.

The White-bellied Sea-Eagle *Haliaeetus leucogaster* is a resident raptor known to affect the seaboard of India. It occurs on the seacoast, tidal creeks and estuaries. It is occasionally met a few miles inland along tidal rivers and at freshwater lakes (Ali & Ripley 1983). Grimmet & Inskipp (1998) mention the habitat for this bird as, "... coasts and offshore islands, tidal creeks, mangroves, lagoons, estuaries; occasionally inland on tidal rivers and freshwater lakes". Naoroji (2007) also has described the habitat of this bird on similar lines.

River Tern Lodge, a unit of Jungle Lodges & Resorts Ltd., is located approximately 675 m msl and 13 41'43"N 75 38'07"E. I am stationed at the River Tern Lodge since February 2006 as a naturalist. Though the White-bellied Sea-Eagle has been reported from the Bhadra Reservoir during March 2006 (Sriram *et. al.* 2008), it was not until 28th February 2007 that I saw this bird for the first time. On this occasion there were as many as four individuals. During the ensuing period, till date, the bird has been seen on several instances. The details are given in the table below.

White-bellied Sea-Eagle has been earlier recorded sporadically from large inland water bodies (Ali & Ripley 1983; Grimmet & Inskipp 1998; Naoroji 2007; Sriram *et. al.* 2008). In recent times, email discussion groups have had reports of sightings of this bird from Bhadra Reservoir (Shurpali 2008), Periyar Reservoir (Praveen 2008), Upper Bhavani (Ramnarayan 2008), and Dandeli (Singh 2008). It has also been sighted on 13th December 2008 in Dandeli, in the vicinity of Kali Adventure Camp, by my naturalist colleagues H. S. Shashidhar and Pramod D. Naik (*verbally*)—this being the most recent sighting. It also has been seen on 8th November 2008 by Mr Dattatreya R. (*verbally*); Mr Mallikarjun (*verbally*) also claims to have seen it several times in the same area—both are employees at the Kali Adventure Camp.

Interestingly, all these sightings have been near large man-made waterbodies—Bhadra Reservoir, Dandeli, and Kali River in the vicinity of Supa Dam, both sites in Karnataka; Periyar Dam in Kerala; and Upper Bhavani Reservoir in Tamil Nadu. All these sightings are approximately 100 km from the coast, as a crow flies.

I consider these sightings significant, as the species has been seen on a regular basis, almost throughout the year, at Bhadra Reservoir. Its sustained presence at Bhadra Reservoir, over a period of nearly two years, would most definitely change its status from being a mere vagrant (Sriram *et al.* 2008), to a resident in the area. More observations on the species' presence on such large waterbodies, not too far from the coast, would probably reveal more about its habitat preferences. Also, it would be interesting to find out if the species breeds in the Bhadra area.

White-bellied Sea-Eagle *Haliaeetus leucogaster* sightings at Bhadra Tiger Reserve

Date	Approx. time	No. of individuals
28th February 2007	0945 hrs	4
2nd March 2007	1715 hrs	2
4th April 2007	1730 hrs	1*
1st November 2007	1745 hrs	1
10th December 2007	1730 hrs	3
20th January 2008	1715 hrs	1
28th January 2008	1000 hrs	1
10th March 2008	1630 hrs	1
7th April 2008	0800 hrs	1
10th July 2008	0900 hrs	1
21st July 2008	0800 hrs	1
22nd July 2008	0900 hrs	1
3rd August 2008	0900 hrs	2
15th August 2008	1000 hrs	2
12th December 2008	0745 hrs	1

*The individual White-bellied Sea-Eagle was seen fighting with a Black Eagle *Ictinaetus malayensis*, for fish, on the shores of the reservoir.

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Both: *B. K. Sharma*

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When a python turned the tables on an eagle

B. K. Sharma

Sharma, B. K. 2009. When a python turned the tables on an eagle. *Indian Birds* 5 (2): 51.
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Mss received on 21st April 2009.

On 1st April 2009, members of the Pratapgarh unit of the Foundation for Ecological Security were on a field trip to the Sitamata Wildlife Sanctuary, as part of an ongoing project to assess its biodiversity, and understand the threats to the sanctuary. The Sitamata Wildlife Sanctuary is located at the tri-junction of Udaipur, Pratapgarh and Chittorgarh districts of Rajasthan and at the confluence of the Aravalli Hills, Vindhyan Mountains and the Malwa Plateau.

When walking along the Karmohi rivulet we saw a Crested Serpent Eagle *Spilornis cheela* swoop on a young Indian rock python *Python molurus* resting on a small tree at the edge of the rivulet. The bird was unable to lift the python and the snake, instead, fell into the water below. The bird did not give up and once again flew down, into the water, and grasped the heavy snake in its talons, as it could not lift it out of the water. Soon we saw the python begin to coil itself around the bird! Even as we watched the tables were turned and the eagle found itself being constricted. The raptor was soon struggling to get out of the python's coils and at the same time keep its head above the water.

The entire episode lasted 30 mins, and we were not the only observers. Some of the local people insisted on separating the two, even as we sought to dissuade them, arguing that nature should take its own course. The two animals were gently separated, and even as the python swam away, a visibly relieved serpent eagle, flew on to a nearby tree where it perched for several minutes before flying away.

Fig. 1. Crested Serpent-Eagle *Spilornis cheela* holding an Indian rock python *Python molurus* underwater.

Both: *B. K. Sharma*

Fig. 2. Crested Serpent-Eagle *Spilornis cheela* entangled in the coils of an Indian rock python *Python molurus*.

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The correct spelling, date and citation for the Chestnut-backed Owlet of Sri Lanka

Edward C. Dickinson, Colin Jones & Normand David

Dickinson, E. C., Jones, C. & David, N. 2009. The correct spelling, date and citation for the Chestnut-backed Owlet of Sri Lanka. *Indian Birds* 5 (2): 52–53.

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Introduction

The Chestnut-backed Owlet, endemic to Sri Lanka, is listed by Ripley (1961: 194; 1982: 183) as *Glaucidium radiatum castanonotum* (Blyth) with a citation given as *Athene castanonota* Blyth, 1852, Cat. Bds. Mus. Asiat. Soc. 39. Peters (1940: 133) treated it as *Glaucidium cuculoides castanonotum* with an identical citation except that he gave the date as "1849 (1852)" and also referred to its earlier introduction by Blyth (1846), which will be discussed below. Baker (1927: 447) treated it as a full species but spelled the name, cited from the same page as *castanotum* and offered a date of 'Dec. 1852' for publication. Baker (1930: 389) used the spelling *castanonotum* (without explaining the changed spelling leading everyone no doubt to presume that this was a deliberate correction).

Recently, Dickinson (2003, 2004) also used the spelling *castanonotum* and the date 1852, as have other authors (with 1849 or 1852). Since the spelling, date and publication cited are all incorrect there is clearly a story to tell.

The 'supposed' original publication

The "Catalogue of the birds in the museum [of the] Asiatic Society" (hereafter the 'Catalogue') is where the name has universally been supposed to first appear.

Peters (op. cit.) was quite correct that Blyth's first report on this bird appeared in 1846 in the *Journal of the Asiatic Society of Bengal* and that he there, on page 280, employed the name *Athene castanopterus* for an owl from Ceylon. Blyth here described two owls; an owl from the Malabar Coast and Travancore he named *Athene malabarica*; of the other, from Ceylon, he wrote, "Which appears to be the true *Strix castanoptera* of Horsfield". So believing the two to belong to the genus *Athene* he used the name *Athene castanopterus* (Horsfield, 1821) and provided his own description.

It has generally been considered that Blyth later realised that the Ceylon bird differed and thus gave it a new name on p. 39 in his Catalogue. The name there is *castanotus* not *castanonotus*. No description is given but there is an explicit reference to his description of this species on page 280 of the *Journal* in 1846. This is thus a *nomen novum* (new name) in the sense of being a replacement name. Because there is no description the availability of the name is dependant on this 'indication' (see ICZN, 1999; Glossary p. 107[1]). Blyth (1846) did provide a description and it is not that given by Horsfield for the Javan bird. Thus the indication is valid and this act or renaming would be valid as such if it were in fact the first such renaming.

Blyth's "Catalogue"

One of us (ECD) has assessed the evidence relating to the appropriate publication date for Blyth's Catalogue (Dickinson 2004) and explained that the title page is dated 1849 and the circumstances which lead him to the conclusion that the Society did not publish the Catalogue until September 1852 or later (and December 1852 as postulated by Baker may not be far out)[2]. The arguments need not be repeated in detail and the article concerned is available to those wishing to read it[3]. Here (op. cit. p. 180) ECD noted, "originally spelled *castanotum*" [sic, error for *castanotus*]!

What is particularly relevant to this discussion is the long period of time during which one authority or another continued to date Blyth's Catalogue from 1849. Had the renaming discussed above been published in a catalogue that appeared in 1849 it would have been the first such act and it would have been valid there. Instead any publication that appeared before the Catalogue would have priority and, because the 1849 date was in use for so long, no one considered that the name might have been used elsewhere between 1846 and 1852.

The real first publication

While Dickinson (2004) sought to provide all the corrections necessary due to the need to use 1852 for Blyth's 'Catalogue' he did not discover this issue, which was instead raised by CJ. He found that Blyth (1850) had included the name on p. 511 in volume 19 of the *Journal of the Asiatic Society of Bengal*. Here one finds '*Ath. castanotus* Blyth, Museum Catalogue' and no description is given but there is the same reference to Blyth (1846).

Consequently the correct source reference for the name *Glaucidium castanotum* (Blyth) is *J. Asiatic Soc. Bengal* 19: 511 and the correct date is 1850.

That the name was so often spelled *castanonotus* may be due to the use of that spelling in the influential *Catalogue of the Birds in the British Museum* by Sharpe (1875: 215) where the original, cited from page 39 of the 'Catalogue' is said to have been *Athene castanonota*. Several other later works are listed by Sharpe in each case the spelling given includes the letters '*nono*'.

Acknowledgements

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1 "Indication, *n*. A reference to previously published information, or a published act, which in the absence of a definition or description allows a name proposed before 1931, and that otherwise satisfies the relevant provisions of Articles 10 and 11, to be available [Art. 12.2]. See also Article 13.6.1."

2 The recommendation that it be dated 1852 brings with it the presumption that that means December 31, 1852, unless it can be proved to have appeared earlier (see ICZN, 1999: Art. 21.3.2).

3 It may be downloaded from the website of the National Museum of Natural History of the Netherlands, Leiden www.repository.naturalis.nl or obtained from its author Edward@asiaorn.org

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Pacific Golden Plover *Pluvialis fulva* (Charadriidae): first record for Bhutan

Rinchen Singye, Arlyne Johnson & Michael Hedemark

Singye, R., Johnson, A., & Hedemark, M. 2009. Pacific Golden Plover *Pluvialis fulva* (Charadriidae): first record for Bhutan. *Indian Birds* 5 (2): 53.
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Mss received on 3rd January 2009.

On 8th September 2007, at 1530 hrs, we observed a Pacific Golden Plover *Pluvialis fulva* on the Punakhatshangchu River, opposite to Khuruthang town, Punakha, Bhutan (27 33'10.35"N 89 52'33.58"E; 1522 m.).

The first bird seen was solitary, and paused on a boulder on the edge of exposed rocky sand bar at a distance of approximately 200 m from the bank of the river. The weather conditions were sunny and calm. We observed the bird with a 20x Kowa spotting scope and 10x Bausch & Lomb binoculars. After observing the individual loafing on the rocky sand bar for approximately 30 min., the bird flew west across the river towards Khuruthang town and appeared to land in the vicinity of the soccer playing field. After birdwatching for a few hours more on the north bank, we drove to the grass-covered soccer field (27 33'11.17"N 89 52'22.51"E), where we thought the bird had landed, and were surprised to find two Pacific Golden Plover actively feeding by probing in the ground on and at the edge of the soccer field. We observed them and photographed one individual on the ground at a distance of 70 m at dusk 1800–1830 hrs.

We identified all individuals as Pacific Golden Plover from the distinctive dark and white pattern of the head and the golden yellow scaling on the back. Birds observed were in adult breeding plumage. The face, breast and belly were black and fore neck mottled black in contrast to the distinct white band stretching from the supercilium along the flank and vent. In flight, the under wing was dusky grey. The species, in this range, which the Pacific Golden Plover could be confused with is the Grey Plover *P. squatarola*, but the upperparts of the Grey Plover are silver-grey and the underwing is white with black axillaries (Hayman *et al.* 1986; Robson 2000).

This Pacific Golden Plover has not previously been recorded in Bhutan (Inskipp *et al.* 1999; Spierenburg 2005), although it is not unexpected that it could occur as a passage migrant in Bhutan, while moving from its Arctic breeding grounds, across Tibet, to the Indian Subcontinent—where it is a widespread winter visitor (del Hoyo *et al.* 1996). Pacific Golden Plover winter in coastal areas but are also found inland on short grasslands and often on playing fields (del Hoyo *et al.* 1996). Southward migrating birds depart from the Siberian tundra in late August and early September, moving at night in large flocks (del Hoyo *et al.* 1996). It is noteworthy that in the days preceding our observation of the species in Bhutan, the area had experienced continuous, heavy rainfall, which may have forced migrating birds to stop en route to their wintering grounds.

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Recoveries from the *Newsletter for Birdwatchers* (1970)—22

Zafar Futehally

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In the March–April 2008 issue of *Indian Birds* (Vol. 4 No. 2), I wrote that 1970 was a significant year for conservation in India because of the IUCN General Assembly meeting held in New Delhi in November 1969, which spawned many environmental projects including Project Tiger. Our *Newsletter* too received more than its usual share of worthwhile articles and I intend to reproduce a few of these in this column to give you a flavour of the times. One exceptionally keen British birder was D. A. Stairmand. His weekends were devoted to birding and his pieces exude the joy he received from his outings. Unlike most birders today, who enjoy the numbers game, and have to hurry from spot to spot, Stairmand took time to stand and stare. And you will agree that he managed to squeeze out a great deal of useful information, which he shared with his readers. There has been much change in the landscape since Stairmand wrote. The Panvel tank, where he saw Bank Mynas *Acridotheres ginginianus*, no longer exists. The Mahim Creek, where we once netted migrant swallows in the famous company of Salim Ali and J. B. S. Haldane, is no longer a birding area. Also the lovely male Collared Bushchats *Saxicola torquata* on telegraph wires on the Alibag road are no longer seen. I am sure you will enjoy reading about these scenes of yester-year.

Birds around Bombay

'On the edge of a clearing in the forest at Khandala on 21st December I was very fortunate to see a pair of Malabar Trogons. Besides the underparts of the male—described by Dr Salim Ali in *Indian Hill Birds* as 'brilliant crimson pink' the thing that struck me most was the broad square cut tail. This was the first time I had seen *Harpactes fasciatus* and it was a wonderful thrill and I only wish they had tarried at least a little longer on the branches of the tree on which I saw them for less than one minute before they flew away.

'Also at Khandala on 21st December I was drawn to a Wild Fig—in ripe fruit—by a monotonous one-note rather high pitched call of a bird. This turned out to be a young Goldfronted Chloropsis *Chloropsis aurifrons* being fed by an adult bird, which was a male. The adult male was resplendent in green, golden, purple and black whereas the immature bird was all green except for traces of the beginnings of dark feathers on the threat. The adult was feeding the young bird on insects gathered from the undersides of leaves. I watched the young bird being fed for about half-an-hour and only towards the end of this session did I see the young bird collecting insects for itself from under the leaves. The young bird's call was almost constant and it crouched and 'shivered' to be fed. The adult bird uttered its pleasant familiar call quite often. It would appear that this bird had bred unusually late as the main nesting period is May to August.

'On 2nd October I saw Kashmir Rollers *Coracias garrulus semenowi* between Thana and Taloja on the Bombay–Poona Road and these are extremely attractive birds with their blue-black flight feathers and wholly light blue underparts. By 10/x these birds had been replaced in the same area by the Indian Roller *C. benghalensis*.

'At Panvel on 21st December there were Bank Mynas *Acridotheres ginginianus* running around amongst buffaloes' feet on squelchy ground. I had not noticed them there before.

'Should I report a Spotbill, Garganey Teal and Common Snipe at Vihar in early December? The Spotbill's metallic green wing-bar, bright orange-red legs, yellow tipped dark bill with orange spot at the base showed up excellently as the bird took off and flew low over the lake.

'A party of *c.* 20 Blacktailed Godwits *Limosa limosa* have been on the Mahim Creek for at least three weeks. When I first saw them on 6th December they formed a mixed party with about 10 Bartailed Godwits *Limosa lapponica* and about 150 Blackwinged Stilts *Himantopus himatopus*. The Stilts are also still there but I have not seen the Bartailed Godwits recently. When together, I found it easy to distinguish the two different Godwits apart. On the mud the longer leggedness of the Blacktailed Godwit was apparent and when in flight the black-ended tail showed up prominently.

'Finally, to end on, not a bird, but a Barking Deer seen running through lightly wooded country in Borivli National Park on 13th December, then across the road about 30 yards in front of my car (which I'd stopped) to the wooded country, bordering Vihar Lake. This was at the hairpin bend before the Deer Pen turning on the right of the road.' **– D. A. Stairmand.** 1970. *NLBW* 10 (1): 7–8.

Some more birds around Bombay

'On 22nd January in the grounds of Government House, Walkeshwar Road, there were several male and female Koels and three Grey Hornbills *Tockus birostris* eating the ripe figs of peepul *Ficus religiosa*. It was enjoyable to watch the Grey Hornbills tossing the figs down their throats with such obvious relish. Towards evening in Borivili Park on 27th December, I saw two Malabar Grey Hornbills *T. griseus*—without the casque—and these bird were badly harassed by 10 jungle crows and driven away despite the immediate presence of Racket-tailed Drongo on the same tree. The tree was a Red Silk Cotton. Driving through Borivli Park at dusk on 14th January I noticed something rather large on the left hand side of the road some forty yards in front of me and as I slowly approached much closer 'the thing' took to steep flight and quite frightened me by its size until I realized it was a glorious Peacock *Pavo cristatus* when my heart beat faster with enjoyment, instead of terror, at the unknown 'Vampire'. As soon as I reached hom I picked up Vol. 2 of the *Handbook* and read once gain: 'They rise with a loud flapping of wings, even an old cok with his long, heavy train rocketing almost vertically to clear the tree-tops. ' During the monsoon months Borivli Park resounded with the strident calls of

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may-awe, my-awe and on 25th October I came across a Peahen with three chicks resting on a track running alongside a pipeline.

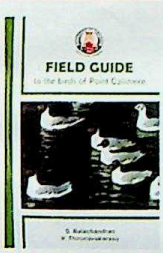
'Of late I have been watching the female Marsh Harrier *Circus aeruginosus*, which was written about by our Editor in an article published recently in a Sunday newspaper. Flying over the `damp littoral' at Vihar sending up wagtails, pipits, larks, munias, etc. and even hoopoes. I never see her catch anything; not that I'm sorry as she looks well-fed. On 19th January a King Vulture *Torgos calvus* was in the same area eating a cattle carcass in the company of Jungle Crows. But on to more pleasant subjects—also in the same few square acres or so. Namely, a fully adult male Bluethroat *Erithacus svecicus*. On 17th January this sprightly robin-like bird was hopping around amongst herbage and flew when I walked towards it. Fortunately it flew only a few yards and then settled on the ground again where I had a perfect view of it for about five minutes as it hopped around picking up insects. This Bluethroat had a white (not chestnut) patch withing the blue throat and was presumably of the race *abbotti*. The Bluethroat had quite a tussle with a green caterpillar before stunning it sufficiently to deal with. Prior to swallowing this succulent morsel the Bluethroat gave a delighted little call. Also in this area I noticed a female Collared Bushchat *Saxicola torquata*, BUT no male, on the margin of the Lake. I'm mentioning her because I see many male Collared Bushchats on the telegraph wires, bushes and shrubs beside the Goa Road and the road to Alibag, without seeing even one female—on some days. Against, say, fifteen males seen in a stretch of road of twenty miles I manage to see only one or two females at most. I suppose the females must be in fields further away from the roadside but I've searched in vain for them. I find that , in contrast the pairs of Pied Bushchats *Saxicola caprata* keep very close together.

'There are now many Common Snipe around Vihar Lake and quite large gatherings of duck on the Lake. From what I can see they are mainly Common Teal *Anas crecca* and on 4th January there were about 20 Pintails *Anas acuta* amongst them.

'On 18th January on a mud-bank at Dharmtar, near Pen, there were six Avocets *Recurvirostra avosetta* swinging their bills, hockey-stick style, through the mud. With them was a Reef Heron *Egretta gularis*—slaty phase—catching mudcrawlers. It was enlightening for me to watch the bird walk to the water and wash its bill clean after each jab—whether successful or unsuccessful—into the mud.

'At Panvel tank on 18th January there was an Open bill *Anastomus oscitans*. At Panvel such birds as In ttle comorants, Pheasant-tailed Jacanas, Bronzewinged Jacanas, Purple Moorhens, Cattle Egrets, Paddy Birds and Smaller Egrets appear to have bred successfully during the last monsoon. Cotton Teal are also seen there now.' **– D. A. Stairmand.** 1970. *NLBW* 10 (3): 8–10.

— Book reviews —



Field guide to the birds of Point Calimere by S. Balachandran & V. Thirunavukarasu. Bombay Natural History Society, Tamilnadu Forest Department. 92 pp +xxvi. Paperback. Price not stated. 2009.

This is a concise field guide to the birds of Point Calimere (Kodikkarai) Wildlife Sanctuary, one of the best birding sites in southern India, located on the eastern seaboard, in the Nagapattinam district of Tamil Nadu. Well-known for its migrant waterbirds, this site has been studied by the Bombay Natural History Society since the late 1960's and was a major field research station where thousands of waders, waterbirds and landbirds have been ringed over the decades. The tropical dry evergreen forest and swamps of the sanctuary are a wintering and stop-over site for several waterbirds, shorebirds as well as passerines (estimated at over 1,00,000 individuals) *en route* their wintering grounds in the southern Western Ghats and Sri Lanka. Some unusual birds recorded from this area in the past include the White-bellied Heron *Ardea insignis*, Black-necked Stork *Ephippiorhynchus asiaticus*, Long-billed Ringed Plover *Charadrius placidus*, Caspian Plover *C. asiaticus*, Spotted Greenshank *Tringa guttifer*, Spoon-billed Sandpiper *Calidris pygmaeus*, Pompadour Green Pigeon *Treron pompadora*, Orange-breasted Green Pigeon *T. bicincta*, European Nightjar *Caprimulgus europaeus*, Oriental Dwarf Kingfisher *Ceyx erithacus*, Siberian Rubythroat *Luscinia calliope*, Broad-tailed Grass Warbler *Schoenicola platyura*, and Kashmir Flycatcher *Ficedula subrubra*, just to name a few. This site is now a Ramsar site (the only one in Tamilnadu) and an Important Bird Area (IBA).

This book covers 274 species of birds recorded from the sanctuary. Each species is illustrated with a colour photograph. The text is organised under the following sub-headings: Size, field characters, distribution, habitat and status at Point Calimere. With three species per page, including the photographs, the book is well laid-out and pleasing to the eye. The photographs have been contributed by well-known photographers like Clement M. Francis, P. M. Lad, and Vijay Cavale. The pictures are of good quality and the book is printed on art paper. Besides this main section, there is a preface that contains a brief introduction to Pt Calimere and its birdlife, three maps (two of which show the localities of recoveries of birds ringed at Pt Calimere, the third being a satellite image of the sanctuary area), two diagrams describing the parts (topography) of birds, a glossary of the technical terms used, and a series of tables which help in identifying birds through certain key characteristics (mostly based on size , colouration, sizes of beaks, legs or tails).

The general description, distribution and habitat sections follow those of Ali & Ripley (1983), and Kumar *et al.* (2005) and are fairly comprehensive giving sufficient details to aid identification of birds including those in juvenile and winter plumages. But the most interesting part of the text is the section on the status of birds at the sanctuary. Here, the authors provide very specific details like, localities where birds may be seen, months when they could be seen, changes in their abundance, status, *etc.* I found this section the most useful one since a lot of the information given here has not been published elsewhere and has been compiled from the notes of earlier workers and the senior author who has spent over two decades here at the sanctuary, studying bird migration.

It comes as a shock to learn that there has been a drastic decline in the populations of waders that winter here—from 500,000 in the 1980s to 100,000 or less at present! It appears this is also true for migrant ducks. Pintail *Anas acuta* numbers have plummeted from

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200,000 to < 50,000 at present, and flamingos *Phoenicopterus roseus* have also dwindled from 40,000 individuals to < 5000 in the last decade. About 70 species enlisted in this book (including the star attractions and vagrants) have not been seen here in recent times. Very surprisingly, this includes Coppersmith Barbet *Megalaima haemacephala* and the Small Minivet *Pericrocotus cinnamomeus* , birds which are quite common in similar habitats elsewhere in Tamil Nadu. I am not sure if some of the species have really disappeared or if this is because there have been fewer birders visiting this sanctuary in recent times. For instance, when I visited the sanctuary in November 2008, I came across at least three Purple Herons *Ardea purpurea* at the Muniappan Eri, which, according to this book, has not been seen within the sanctuary limit in the last 25 years. I was also pleasantly surprised when I found that the Tawny Pipit *Anthus campestris* and the Thick-billed Flowerpecker *Dicaeum agile* I saw on this visit were additions to the list of birds of the sanctuary! However it is reassuring to know that populations of a few other species have been on the increase and there have also been records of some species that were not recorded here earlier in recent times or not seen here for long periods.

The book could have been better edited as there are quite a few minor errors. It would have been more comprehensive had it included a list and a detailed sketch map of birding sites within the sanctuary highlighting various species that one could look out for. A detailed bibliography and references for the various earlier records that are discussed in the section, 'status at Point Calimere', would have been invaluable to researchers and the more serious ornithologists visiting the sanctuary. Inclusion of descriptions on calls of birds as well as the Tamil names would have added value.

There are a few other minor technical errors that I wish to point out: The book includes the Red-winged Bush-Lark *Mirafra erythroptera* whose identity was questioned by Abdulali (1985). I had seen only the Jerdon's or Rufous-winged Bush-Lark *M. affinis* here during my last visit in November 2008. There is no mention of the Philippine Shrike *Lanius cristatus lucionensis*, which was reported by Balachandran & Alagar Rajan (1994) and the Dark Thrush *Turdus obscurus*, reported by Harrap & Redman (1989). I am not sure if the Orange-headed Thrush *Zoothera citrina*, seen at Point Calimere, belongs to the subspecies *cyanotus* or *citrina*. There is a mismatch between the description and the photograph. The book lists Peregrine Falcon *Falco peregrinus* as a resident species, which is somewhat intriguing since there are no ideal nesting sites for this bird in the sanctuary or in its immediate vicinity. I had seen the migratory subspecies *calidus* here on my last visit. There are no details given on the sighting of the Long-billed Ringed Plover, reported from the sanctuary recently by 'a birdwatcher'.

Overall, this is an important publication concerning the birds of Tamil Nadu. It is a handy guide containing useful information on the changes in the status of birds in the sanctuary over the last three decades. One hopes there will be more such publications in the country. A Tamil translation of this work would help create more awareness among the non-English speaking Indians and help them better understand birds and their natural history.

It has been my experience that publications such as these, brought out by Forest Departments, are never accessible to the public at large, and remain buried in the godowns of the department, unknown to anyone! It would be a shame if this book too was to meet a similar fate. I do hope that it is sold at a nominal price to visitors of the sanctuary.

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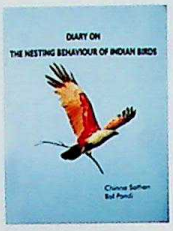
—*V. Santharam*



Diary on the nesting behaviour of Indian birds by Chinna Sathan and Bal Pandi. Published by V. S. Geetharani, Sugeeth Publisher, 17, SVL Nagar, Sulur, 641402 Coimbatore Dt., Tamil Nadu. E-mail: *sukubird@yahoo.com*. 223 printed pages. Paperback. Price: Rs 650/-

This book is quite unique, since it is not another bird book that lists birds of a given locality, with second-hand information on identification, distribution, *etc*. Instead, the authors have attempted to put together original information, from their own field experiences, on the nesting behaviour of 51 species, many of which are common birds. This book is a labour of love and dedication. It has been produced with the good intention of sharing the joys and knowledge of watching and studying birds. It is profusely illustrated with colour photographs contributed by several photographers, chiefly by: T. R. A. Arunthavaselvan, Srinivasan Durairaj, Sivaprasdh (*sic*), N. Radhakrishnan, Dr M. S. Mayilvahanan, and Shanmughanandhan E. The line drawings are by the first author.

The book opens with a message from the Hon. Minister of School Education, Tamil Nadu, Thangam Thenarasu. Ashish Kothari has written the "Foreword", a must read for all those who want to buy the book (it can be found along with other details about the book including the Introduction at: http://www.nestingbook.webs.com/)This followed by a several chapters: introduction, habitation (*sic*), mysterious behaviours of birds, breeding biology, followed by species-wise accounts (which is the main part of the book), birds of prey, predators of nests, a family dedicated to birds (short notes on the authors and contributors), indices of sketches and photographs, including credits and references.

The main section, 'Nesting behaviours of birds', deals as mentioned earlier, with accounts of 51 bird species that are categorised under: scrape nests, twig nests, tree hole nests, tunnel nests, cup nests, ball nests, floating nests, building (*sic*) nests, pendant nests, and stitched nest. The title of the book is somewhat misleading since one expects to find the text presented as anecdotal/datewise accounts. But the format is one wherein the authors have organised the data into sub-headings in most cases and only in a few species, the data is presented as date-wise entries. The following are some of the sub-headings: habitat, sex (*sic*), breeding season, breeding plumage, courtship, mating, nest, clutch, incubation, egg, guarding, chick, parental care, sub adults, roosting, general note, predator, special aptitude (*sic*), mud bath, tail information, rearing the young, peculiarity, feeding, territory announcement, cleanliness of nest, marvelous nature, bath, nourishment, special information, day stay, *etc*.

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The text needs to be heavily edited, though there is no doubt it does make for delightful reading in its present form—"Edges of lake! Oh! Bring me immense joy. See there!" (p. 5); " After repeated attempts only, the female accepts the overtures of the cock like the heroine of a cinema love story" (p. 32); "It is like a meditative bird with valour" (p. 118); "If the cock offers the gift mouth to mouth the two develop closeness just like a boy offering a boquet or ice cream to the girl he loves" (p. 195); "They become exceedingly noisy, hurling acrimonious abuses at each other. I saw on several occasions a pair of Black Drongos perched on a telegraphic wire yelling at each other in rhythm, one after another. They indulge in premarital display" (p 143). Often, the interpretations of bird behaviour tend to be completely anthropomorphic.

Though this book has presented several interesting and original observations, the authenticity of these have not been cross-checked. For instance, the book states that the Yellow-wattled Lapwing's *Vanellus malabaricus* eggs hatch in 17 days, the Indian Courser's *Cursorius coromandelicus* in 13–15 days, the Red-wattled Lapwing's *Vanellus indicus* in 17 days, the Spot-billed Duck's *Anas peocilorhyncha* in 15 days, whereas, being nidifugous, the chicks of these species need longer periods of time to develop. The book gives the incubation periods for smaller birds that have nidicolous chicks as follows: Coppersmith Barbet *Megalaima haemacephala*, 13 days; Hoopoe *Upupa epops*, 16 days; Small Bee-eater *Merops orientalis*, 17 days; and so on. The average incubation period for lapwings is about 4 weeks. I had myself observed this from the close study of a nest of a Yellow-wattled Lapwing at the Adyar Estuary, several years ago (Santharam 1995). The authors have not described their methodology of studying nests, especially for those birds that nest in holes, where there are problems determining clutch sizes, incubation period, *etc*. Also, there are no indications as to how many nests were studied to arrive at the results presented.

There are some statements that need further substantiation: "A pelican consumes *at least 5 kgs*. of fish a day"; "it has *worms* inside the stomach which devour the fish in minutes"(pg. 103); "the male and female {sunbird} *discussed* this sitting on a twig" (p. 186, while describing an incident when the nest of a sunbird was damaged by a cat). [The italics are mine].

There are a few other minor errors in the text: The authors have misidentified the Lesser Golden-backed Woodpecker *Dinopium benghalense* as the Greater Golden-backed Woodpecker *Chrysocolaptes lucidus*. We are left to guess the identity of the "Little Falcon" and the "non-venomous water viper" (p. 48).

All these may mar the scientific value of this publication.

The book is printed on art paper and the choice of photographs could have been more selective, as they are of varying quality and in some instances, repetitive. This would have allowed more space to print the better ones on a larger format, adding more appeal to the book. I also feel that the inclusion of close-up photographs of newly hatched chicks at the nests should have been avoided since some of these could have been subject to predation thanks to the attention drawn to it by the photographers. Some of the line drawings too could have been avoided, and the captions chosen more carefully.

Overall, though this is a good effort to document the nesting behaviour of Indian birds, inaccuracies, poor editing and interpretation of behavioural data, make this book only acceptable in parts, but may not find favour among the scientific community. Hopefully it would help encourage more birdwatchers shift from a "listing mode" to the more serious "study mode", which would contribute to our collective knowledge of the habits of our birds, including the commonest species.

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—V. Santharam

— Postcard from Singapore —

5th International Hornbill Conference

Ragupathy Kannan

When Singapore announced its intent to host the 5th International Hornbill Conference some birders' eyebrows, including my own, were raised. After all, Singapore, a bustling city-state, which was once cloaked in dense tropical rainforest, lost all its hornbills over a century ago, with the last Oriental Pied Hornbill recorded in 1855. But many of the delegates were pleasantly surprised to learn that the Oriental Pied Hornbills are back. After more than 130 years, they reappeared in 1994 in Pulau Ubin, an islet north of the main island of Singapore. Since then about 40 birds have been spotted, some even in "mainland" Singapore.

The organisers effectively used these welcome newcomers as the mascots of the conference (22–25 March 2009). Singaporeans presented fascinating papers on their effort to protect this locally rare population. In post conference fieldtrips, the organisers proudly showed off the birds in the wild, including some carefully controlled group visits to a pair breeding in an artificial nest box in Pulau Ubin. And what a 'wired' artificial box it was! Some of the most fascinating papers stemmed from these ultra modern "smart" boxes, which not only have video cameras monitoring every activity round the clock, but also record weights of parents and chicks, and even that of the morsels brought in by the parents by weighing parent before and after food delivery! The video cameras successfully documented infanticide-cum-cannibalism in this species.

Over a hundred participants, hailing from 19 countries, presented a wide variety of papers. Topics ranged from status and distribution to home ranges, breeding biology, impact of humans, and research methods in captivity and in the wild. Surprisingly, none of the papers directly addressed seed dispersal services rendered by hornbills, obviously showing how neglected this topic is, an issue that was raised by Margaret Kinnaird's keynote address (more on this later in this report). There was a noteworthy and ground-breaking

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paper on wood decay fungi in hornbill nest cavities from Thailand. Another new find was the documentation, by field observations, photographs, and DNA studies, of a hybrid between Great and Rhinoceros Hornbills in the wild in Thailand, which aroused disturbing implications on the impact of forest fragmentation.

The veterans of hornbill studies were all there. Alan and Meg Kemp gave a fascinating keynote address on diversity and radiation of hornbills, which summed up what we know about the evolution of the now 60 species—up from 45 with lots of splitting. With new evidence, they reiterated their support for the assumption that the hoopoes and woodhoopoes were the sister clade to hornbills, with the hornbill line having branched off about 49 million years ago. Pilai Poonswad continues to lead a team of enthusiastic and competent Thai researchers who continue to break new ground. She and her team impressed the audience with the amazing work they have done to successfully repair old nests in the wild (which had shrunk or become misshaped) to ensure continued usage. They also presented on their successful installation of artificial nest cavities in the wild. Margaret Kinnaird's keynote address on past and future directions in hornbill research analysed 700 publications on hornbills, of which, the bulk (27%) focused on ecology, and a miniscule (2%) addressed genetics. She highlighted the lacuna in seed dispersal studies and urged researchers to move away from nests and roosts into the forests to address seed dispersal queries.

Papers from the Indian Subcontinent included Sneha Vijayakumar's fascinating follow-up status survey of the Malabar Pied Hornbill in Dandeli, in which she re-surveyed tracts covered over 20 years ago by Reddy and fortunately reported no decline in this crucial hornbill area; Amitha Bachan and others' work on involvement of local Kadar tribesmen in monitoring and conservation of hornbills in Anaimalais of Kerala; Abrar Ahmed's report from TRAFFIC India on illegal trade in hornbills, which disturbingly reported 60 hornbills (including stuffed specimens and casques) of five species between 1995 and 2008; E. Santhoshkumar and P. Balasubramanian's study of fruit diet of Indian Grey Hornbills in the Eastern Ghats; Raju Kasambe and others' study of the same species from central India; and Amitha Bachan, R. Kannan, and Doug James' pilot study of installing artificial nest cavities for the Great Hornbill in southern India (which reported no usage in the wild so far, but the developments from Thailand lead them to believe that this may be just a matter of time).

The organisers have to be commended for successfully staging a truly grand international conference despite the severe worldwide economic downturn. The lush and bird-rich Singapore Botanic Gardens served as an attractive venue and participants were treated to some great Singaporean cuisine, which presented a delightful blend of Indian and Chinese fare with lots of seafood and other delicacies.

— *In the news*[1] —

Compiled by Prashanth N. S.

Pied Cuckoo Clamator jacobinus *campaign by MigrantWatch*

After covering two successive migration seasons, MigrantWatch, a first-of-its-kind web-based citizen science initiative in India, has launched the Pied Cuckoo Campaign on 13th May 2009, to track the movements of the 'rain bird', the Pied Cuckoo *Clamator jacobinus*. The campaign is similar to the ongoing MigrantWatch initiative, wherein birdwatchers from all over the country are reporting first and last sighting information from particular locations, in addition to stray sightings of migrant birds from anywhere. In this new campaign, participants contribute information on first sightings of the Pied Cuckoo in this calendar year. This information, plus records of presence through the year will help to assess whether Pied Cuckoos really do proclaim the advent of the monsoon (and, if so, by how many days); and will also provide valuable data to separate migratory versus resident populations. MigrantWatch is the first volunteer-based project in India devoted to collecting information on the timing of bird migration. Baseline information collected in the first few years of the project will be used to assess changes in the timing of migration over the medium-to-long term. As of 22nd December 2008, on the MigrantWatch website, there have been 1,889 first sightings of 171 migrant species from the 2008–2009 season, contributed by 188 participants from 24 Indian states. A blog was launched on 25th May 2009 to provide a forum for posting and discussing migrants' related information.

The website features details of the campaign, information on the Pied Cuckoo with identification tips, photos, illustrations and call recordings. Reporting the cuckoo sightings is similar to reporting any migrant sightings using the same login username and password. For those, who haven't yet logged in to MigrantWatch, here's a chance to be a part of one of the country's fast growing citizen science initiatives at: *www.migrantwatch.in*. See 'Mendiratta & Quader. 2009. *Indian Birds* 4 (4): 122–126 (2008)' for an analysis of the results of the second MigrantWatch season. For the blog, go to: *www.migrantwatch.in/blog/*.

How well do you know your scientific names?

Use of scientific names for birds reduces confusion, and increasingly, birdwatchers have adopted use of scientific names on the Internet, on discussion groups and blogs. A very basic application for self-testing one's knowledge of scientific names of birds of the Oriental region was launched in April 2009. Sharing the link on *Delhibird*, the author, Abhijit Menon-Sen, shared that the application is based on the database of common and scientific names available at the Oriental Bird Club Image database. For the tester, see: *www.toroid.org/misc/randomname.cgi*. For the OBC Image database, see: *www.orientalbirdimages.org*.

[1] For the period 15th May–15th June 2009.

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New book on nesting behaviour

A new book was released on nesting behaviour of Indian birds in May 2009. The book is written by China Sathan and Bal Pandi and is entitled '*Diary on the nesting behaviour of Indian birds*'. The book is priced at Rs. 650 including postage within India. Details available on *www.nestingbook.webs.com*.

From the field

Atul Jain reported several birds, including endemics, from Khonoma village, 20 km west of Kohima in Nagaland. The Khonoma Nature Conservation and Tragopan Sanctuary was declared in 1998 by the local people. It is owned and managed by the village of Khonoma. Among the birds he reported from Khonoma village in early May 2009 were Mountain Bamboo Partridge *Bambusicola fitchii*, Rufous-throated Hill Partridge *Arborophila rufogularis*, Black-throated Thrush *Turdus ruficollis atrogularis*, White-tailed Blue Robin *Myiomela leucura*, Purple Cochoa *Cochoa purpurea*, Crested Finchbill *Spizixos canifrons*, Yellow-rumped Honeyguide *Indicator xanthonotus*, Striped Laughing Thrush *Trochalopteron virgatum*, Spot-breasted Scimitar Babbler *Pomatorhinus erythrocnemis*, Pygmy *Pnoepyga pusilla* & Naga Wren-babbler *Spelaeornis chocolatinus*, Rusty-capped Fulvetta *Alcippe dubia* and Grey Sibia *Heterophasia gracilis*. Shashank Dalvi reported sighting of Gould's Shortwing *Heteroxenicus stellatus* (*Courtesy: Delhibird*). S Subramanya reported sightings of Laggar Falcon *Falco jugger* and the northern Indian race of the Pied Bushchat *Saxicola caprata bicolor* from Dharwad on 10th February 2009 and shared several links to the four Indian races of this bird from images on *India Nature Watch* (*Courtesy: Bngbirds*). On 30th May 2009, Adesh Shivkar and six others reported the Ceylon Frogmouth *Batrachostomus moniliger* from Phansad Wildlife Sanctuary, located 150 km south of Mumbai. This is the northern-most record of this bird yet (*Courtesy: BirdsofBombay*). On 5th June 2009, Umesh Mani reported several adult and juvenile Painted Stork *Mycteria leucocephala*, one Wooly-necked Stork *Ciconia episcopus*, a flock of Eurasian Spoonbills *Platalea leucorodia* and eight chicks of Red-wattled Lapwing *Vanellus indicus* from ICRISAT campus in Hyderabad (*Courtesy: Bngbirds*). Harish Bhat reported nesting Jungle Babbler *Turdoides striatus* feeding a Hawk-cuckoo *Hierococcyx spp.* in Biligiriranga Swamy Temple Wildlife Sanctuary 200 km south of Bangalore, Karnataka (*Courtesy: Bngbirds*). Prasanth Narayanan reported nesting of Black-headed Ibis *Theskiornis melanocephalus* in an *Annona glabra* tree at Kumarakom heronry in Kerala on 10th June 2009 (*Courtesy: Keralabirder*). Subramaniam Chandrasekaran reported two flocks of over 30 and 40 White-rumped Vulture *Gyps bengalensis* from Satyamangalam Wildlife Sanctuary in northern Tamil Nadu on 7th June 2009. Hopeland reported nesting of Black-winged Stilts *Himantopus himantopus* from the Pallikaranai marsh in Chennai on two occassions on 22nd & 31st May 2009 (*Courtesy: Tamilbirds*).

Pigeon deaths in Sikkim

Animal husbandry department officials reported the death of over 10,000 pigeons during May 2009 in Singtam in eastern Sikkim. The deaths have been attributed to a bacterial infection. Samples were taken for analysing the cause of death. Bird flu has been ruled out, as a probable cause, by the officials. Local residents expressed anxiety over infection spreading to poultry (*Courtesy: Indo-Asian News Service*).

Migration of dragonflies across the western Indian Ocean

A recent paper in the *Journal of Tropical Ecology* discusses the annual appearance of huge numbers of dragonflies in the Maldives during October–December every year and in smaller numbers in May around the time when the south-west monsoon winds appear in the region. The paper discusses the possibility of Maldives being in the migratory path of these insects as they fly from India to East Africa, across the western Indian Ocean. Several birds that hunt dragonflies also make the crossing at the same time, including raptors like Amur Falcon *Falco amurensis*, Lesser Kestrel *F. naumanni*, Eurasian Hobby *F. subbuteo*, and others like, Blue-cheeked Bee-eater *Merops persicus*, European Roller *Coracias garrulus* and three cuckoo species. For a PDF please visit: *www.journals.cambridge.org/action/displayIssue?jid=TRO&volumeId=25&issueId=04/&iid=5645044*.

Image database of Indian birds, butterflies and plants

J. M. Garg, a contributor to *Wikipedia*, has created a resource of a few thousand images consisting of about 350 species of Indian birds, 175 species of butterflies, and 350 species of plants and trees. The images are arranged alphabetically and capture various aspects of plumage, habits and behavior. The images are uploaded to *Wikimedia Commons*, which is a media repository supporting various *Wikipedia* projects as well as providing these media under a license that allows for easy reproduction of images with minimal conditions (See 'Terms of Use' on the website). The above images are uploaded under a Creative Commons Attribution Share-Alike License that allows for easy re-use of images for conservation education and such other purposes. See *www.commons.wikimedia.org/wiki/Category:J.M.Garg*.

BirdLife International announces more Critically Endangered birds than ever before

BirdLife International's latest evaluation of the world's birds has revealed that more species than ever are threatened with extinction. A staggering 1,227 species (12%) are now classified as Globally Threatened, but the good news is that when conservation action is put in place, species can be saved. BirdLife International's annual Red List update, on behalf of the IUCN, now lists 192 species of birds as Critically Endangered, the highest threat category, a total of two more than in the 2008 update.

A recently discovered species from Colombia—Gorgeted Puffleg *Eriocnemis isabellae*—appears for the first time on the BirdLife/IUCN Red List, being listed as Critically Endangered. The puffleg, a flamboyantly coloured hummingbird, has only 1,200 Ha of habitat remaining in the cloud forests of the Pinche Mountain range in south-western Colombia and 8% of this is being damaged every year to grow cocoa. Sidamo Lark *Heteromirafra sidamoensis*, from the Liben Plain of Ethiopia, has also been uplisted to this category due to changes in land-use, and is in danger of becoming mainland Africa's first bird extinction. And coinciding with the 200th anniversary of Charles Darwin's birth, one of the Galapagos finches, Medium Tree-finch *Camarhynchus pauper*, also becomes Critically Endangered, partly as a result of an introduced parasitic fly.

But it's not only rare birds that are becoming rarer, common birds are becoming less common. In eastern North America, Chimney Swift *Chaetura pelagica* is fast disappearing from the skies. Following continent-wide declines of nearly 30% in the last decade alone, this common species has been uplisted to Near Threatened. Earlier widespread birds of prey are also disappearing at an alarming rate, and emblematic species such as Bateleur *Terathopius ecaudatus* and Martial Eagle *Polemaetus bellicosus* have been uplisted as a result. "These declines are mirrored in many species, in every continent", said Jez Bird, BirdLife's Global Species Programme Officer.

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But it's not all doom and gloom. Conservation does work and there are some great examples in this year's BirdLife/IUCN Red List. In Brazil, Lear's Macaw *Anodorhynchus leari* has been downlisted from Critically Endangered. Named after the English poet, this spectacular blue parrot has increased four-fold as a result of a joint effort of many national and international non-governmental organisations, the Brazilian government and local landowners. In New Zealand, Chatham Petrel *Pterodroma axillaris* has benefited from work by the New Zealand Department of Conservation and has consequently been downlisted from Critically Endangered. And in Mauritius, the stunning Mauritius Fody *Foudia rubra*, has been rescued from the brink after the translocation and establishment of a new population on to a predator-free offshore island. It has now been downlisted to Endangered. Similar work is now also underway for 32 Critically Endangered species as part of the BirdLife Preventing Extinctions Programme. Courtesy: *Birdlife International Press Release. www.birdlife.org*.

— Correspondence —

Of all the 'special issues' published by *Indian Birds* to date, the 'Bhutan special' (4: 6, November–December 2008) is by far the most attractive, both in terms of the excellent visuals and the matching good text.

The lead article, 'On the wings of the Peaceful Dragon', will rate among the best birding-writing anywhere. A pity though that unnecessary comments crept in, on the personal life of His Majesty Jigme Singye Wangchuk, the Fourth Druk Gyalpo.

Let us not forget that in 1972, he was the toast of the international diplomatic corps as the 'gallant-knight'. For, at the SAARC summit at Colombo, due to a protocol faux pas, there was no one to escort Mrs Indira Gandhi to her seat. Of all the heads of state in that hall, it was HM Jigme Singye Wangchuk who alone noticed Mrs Gandhi's discomfiture, instinctively got up, and gallantly walked her up the red carpet to her seat.

In the 1960s, when Dr Salim Ali wanted to survey the birds of north-eastern India, it was His Majesty's grandfather who volunteered logistics (tented camps, food, porters, *etc.*) at state expense. He even ventured to persuade Salim Ali for an exclusive book on the birds of Bhutan. However, when the ornithologist explained that there was little difference in the avifauna of Bhutan and the north-east, the king understood his logic, but nevertheless stood by the commitment of free logistics and even agreed to buy 500 copies of the first edition to recompense the cost of publication.

So it is not by accident but by the Wangchuk dynasty's choice that over the past 60 years forests and birds have thrived in Bhutan. Not birds alone, but India's national animal the tiger too, has been accorded total state protection in a manner that India has been unable to provide. In 2003 when Ruth Padel, Darwin's great grand daughter asked the Bhutanese PM, 'what are the long-term chances of the tiger's survival in Bhutan,' (or words to that effect), his prompt reply was, 'we have pledged to protect the tiger, and its future in Bhutan is non-negotiable'!

If the tiger and its habitat thrive in Bhutan so shall its avifauna, thanks to the kings of Bhutan.

– ***Lt. Gen. Baljit Singh***, *Chandigarh*

Further to the Editor's note appended to the article on inter-specific feeding involving White-eyes by Balar (2009. *Indian Birds* 4: 164), I found two interesting articles involving White-eyes and inter-specific feeding. In Thailand, Pierce (2005) observes a Little Spiderhunter feeding nectar to White-eye fledgelings of *Zosterops* species in the wild. Interestingly, this feeding behaviour was observed again a minute later in the presence of the adult parent White-eyes, which maintained calm, while still holding grub in their beaks. The author writes about the lack of any notes on inter-specific feeding from Asia, while claiming that his is perhaps the first account of such behaviour. This publication is however after Gruisen (2004), listed under your Editor's note. Eddinger (1970) records adult non-breeding mature White-eyes feeding nestlings of House Finch *Carpodacus mexicanus* and House Sparrow *Passer domesticus*, albeit not in the wild. The author notes that this may be because the White-eyes were raised in aviaries.

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– ***Prashanth N S***
Director (Projects & Research)
Karuna Trust & VGKK, BR Hills/Bangalore

— In memoriam —

David William Snow 1924–2009

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Aims & Objectives

- To publish a newsletter that will provide a platform to birdwatchers for publishing notes and observations primarily on birds of South Asia.
- To promote awareness of birdwatching amongst the general public.
- To establish and maintain links/liaison with other associations or organized bodies in India or abroad whose objectives are in keeping with the objectives of the Trust (i.e. to support amateur birdwatchers with cash/kind for projects in ornithology).

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Photo: *Ramki Sreenivasan*

Found in the lower reaches of Eaglenest, below Sessni, and classified as vulnerable, the Rufous-necked Hornbill *Aceros nipalensis* is a breeding resident, and we located two breeding pairs in May. Eaglenest is one of its last strongholds.

Date of publication: 1st August 2009

Front cover: We found these aggressive Streaked Spiderhunters *Arachnothera magna* at eye-level in a flowering *erythrina* tree along with leafbirds and sibias. They were constantly chasing other birds (especially leafbirds) from their feeding stations, probably to claim the best nectar in the tree!

Photographer: Ramki Sreenivasan

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The magical monals of Mishmi—a week's birding in eastern Arunachal: 18–25 November 2007[1]

Bikram Grewal

Grewal, B. 2009. The magical monals of Mishmi—a week's birding in eastern Arunachal: 18–25 November 2007. *Indian Birds* 5 (3): 62–64.

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Our collective curiosities about the Mishmi Hills were first aroused when we learned that Julian Donahue and Ben King had 're-found' the enigmatic Rusty-throated Wren-Babbler *Spelaeornis badeigularis*, now re-christened, Mishmi Wren-Babbler, in 2004. This bird was known to the world from only a single skin of a female that landed in the mist-nets of Drs Sálim Ali and Dillon Ripley during their survey of the area in the late forties. It lay hidden from the ornithologists' eyes till the venerable duo lured it by playing the tape of similar species and managed to not only photograph, but also record its song. We scoured the Internet in the hope of getting more information, but other than establishing that it was supposed to be locally common, little was available. Ben King's reports were brief, but full of allusions about the birdlife of this little-visited area. We managed to make contact with Julian, who was more than helpful and gave us maps, details of routes, and most importantly, names of places where we could stay. To him our grateful thanks. Another celebrated birder, James Eaton, visited the Mishmi Hills, but did not complete a trip report, limiting himself to listing the birds seen. The list made tantalizing reading and was full of birds like Purple *Cochoa purpurea* and Green *C. viridis* Cochoa, Violet *Chrysococcyx xanthorhynchus* and Asian Emerald *C. maculatus* Cuckoos, not to mention Satyr Tragopan *Tragopan satyra* and Blood Pheasant *Ithaginis cruentus*. Names like Gould's Shortwing *Brachypteryx stellata*, White-hooded Babbler *Gampsorhynchus rufulus*, Pale-headed Woodpecker *Gecinulus grantia* and Purple Wood-Pigeons *Columba punicea* dotted the lists and made mere mortals like us toss in our sleep.

Armed with what little knowledge we had, but with a high sense of anticipation, we contacted Help Tourism with a request to organise a trip to the Mishmi Hills. To their eternal credit, the intrepid Asit Biswas and Raj Basu undertook two recce trips before proposing that we travel on the sensible road, i.e., to Hunli, via Roing and the Mayodia Pass. And so one sunny morning we arrived in Dibrugarh, in eastern Assam, the north-eastern-most airport in India. We met up with Raj and the support team and proceeded straight to Saikhowa Ghat, where we had to ferry our two jeeps across the Lohit River. The journey took us through splendid tea gardens with familiar names and we spent some pleasurable time seeing the *affinis* race of the Indian Roller *Coracias benghalensis*, while the dark race of the Common Stonechat *Saxicola torquatus stejnegeri* had us temporarily foxed.

The crossing was one the most perilous that any of us had ever undertaken and included the transfer of our vehicles, with the help of two thin planks, onto two country boats joined together to form a primitive raft. Having successfully managed this arduous task, we spent the one-hour journey eating our packed lunch and scanning the river, which was speckled with Brahminy Shelducks *Tadorna ferruginea*. A lone Osprey *Pandion haliaetus* flew in the distance.

We drove on to the small town of Roing, the district headquarters of the Lower Dibang Valley, once the entry point to the erstwhile North East Frontier Agency, popularly known as NEFA. We topped up our supplies that included meat on the hoof, live chickens and, most important of all, fuel for the cars. This was to be our last outpost before we entered the true Mishmi Hills. Essentials would now onwards become scant and cell phones would (mercifully) be dead. Fortified with enough food, drink and such necessities, we moved on, bypassing the broken bridge on the Itapani River, to finally reach the grand-sounding 'Dibang Valley Jungle Camp'. This rustic camp consisted of a typical Mishmi 'long-house' built on stilts. Charmingly located, overlooking the Lohit and Dibang River systems, it sat in a forest clearing, now planted with nascent orange trees. Adequate would be a good term to describe the resort, though it must be said we were the first occupants, and plans for improvement are underway. Sitting in the covered portico, we could see Common Buzzards *Buteo buteo* and a Crested Goshawk *Accipiter trivirgatus* fly over the river basin, and a Common Kestrel *Falco tinnunculus* perched on a wire near the camp. A pair of Grey Bushchats *S. ferrea* flickered in the shrubs. All of this boded of good birding, and after having had the first of many excellent meals, prepared by our camp cook, Jibon, we retired to await a 0330 hrs wake-up call. We rose to the call of hoolock gibbons *Hoolock leuconedys* and shivered in anticipation (and the cold!) of what lay ahead of us in this mystic land.

First-time travellers to north-eastern India will marvel at how early the sun rises and how soon it sets. It is always sensible to be out in the field thirty minutes before sunrise to take advantage of the day's best birding hours. So it proved on our first day of serious birdwatching in these fabled hills. It is best to point out at this stage that most of our birding, on this trip, took place on the main road to Hunli, and beyond, and this was because the habitat was so pristine and dense, with no paths leading into the woods, and with the forest-edges and scrub limited. The birds were truly shy, and this we attributed to the many small-bore guns in evidence, and the fact that almost every Mishmi tribal carried a slingshot. We saw several birds, particularly of the laughingthrush family, but due to the heavy foliage, and their skittish behavior, we could not identify them all with any certainty. Bird densities were low, the species less varied and hunting parties smaller than the ones in northern West Bengal and Sikkim. Similarly, the warblers were few and far between, with Yellow-browed Leaf-Warbler *Phylloscopus inornatus* being the commonest. Others, over the days, included a few Grey-cheeked Flycatcher-Warblers *Seicercus poliogenys*, Orange-barred Leaf-Warbler *P. pulcher*, Grey-faced Leaf-Warbler *P. maculipennis*, and a single Blyth's Leaf-Warbler *P. reguloides*.

[1] [Editors' Note: A slightly modified version of this article was earlier published on http://www.kolkatabirds.com/mishmi/mishmi_tripreport.htm. We are grateful to the author as well as the owners of the website for permitting us to use this article.]

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This not withstanding, we soon had the first of our many lifers of the trip. These included Long-tailed *Heterophasia picaoides* and Beautiful *H. pulchella* Sibia, and White-throated Bulbuls *Alophoixus flaveolus*. Grey-backed Shrikes *Lanius tephronotus* were common and Short-billed Minivets *Pericrocotus brevirostris* made a brief appearance. A pair of Large-billed Blue-Flycatchers *Cyornis banyumas* surprised us all, and due to their rarity in India, we marked them as only a possibility till experts later confirmed from our photographs. Pleased with our brilliant start, we returned to the long-house, packed our jeeps and started the slow climb to Mayodia Pass, which was to be our next halt. En route, we played the tape of the Mishmi Wren-Babbler at the different points given to us by Julian. We elicited no less than seven responses, but the bird never showed itself. However Yellow-throated *Alcippe cinerea* and Streak-throated Fulvettas *A. cinereiceps*, Sultan Tits *Melanochlora sultanea*, Streak-throated Barwings *Actinodura waldeni*, Streaked Spiderhunter *Arachnothera magna* and Dark-throated Rosefinch *Carpodacus nipalensis* kept us occupied. Perhaps the most interesting bird on this stretch was the very 'tit' like White-bellied "Yuhina" *Yuhina zantholeuca*, which now rejoices under the new name of White-bellied Erpornis *Erpornis zantholeuca* bestowed upon it by Pam Rasmussen. A few Striated Bulbuls *Pycnonotus striatus* also turned up on the road. By far the most gregarious bird in all our days in the hills was the Black Bulbul *Hypsipetes leucocephalus* of the *nigrescens* race. Flocks containing up to a few hundred birds were not uncommon, and seen several times a day. A pair of yellow-throated martens *Martes flavigula* appeared suddenly and then disappeared with equal alacrity.

A quick lunch on a bridge added the two ubiquitous redstarts—the White-capped *Chaimarrornis leucocephalus* and the Plumbeous *Rhyacornis fuliginosus*, while the Blue-fronted *Phoenicurus frontalis* remained the commonest redstart of the trip. By mid-afternoon we had reached Mayodia where our accommodation consisted of a so-called 'coffee-house'. It was actually a rest house with basic amenities, but there's an interesting story why it's called a 'coffee-house'. It seems the local government did not have funds for a full-fledged rest house but had some money under the head 'coffee-house'. So they built this structure and labeled it so. It's a different matter no one asked why a 'coffee-house' should be built in such a remote place where permanent population comprised just the *chowkidar* and his wife. Anyway, we were grateful to these far-sighted accountants, for it bestowed upon us a roof in this very cold and wind-blown pass. We spent the rest of the day birding locally, looking unsuccessfully for parrotbills (Panurinae) in the extensive bamboo brakes. Though Common Hill-Partridges *Arborophila torqueola* called regularly, much to our disappointment, we did not see any. A Mountain Hawk-Eagle *Spizaetus nipalensis* and a pair of displaying Eurasian Sparrowhawks *Accipiter nisus* provided small compensation.

Leaving before dawn we had just crossed the pass when Sumit Sen, who had left his spectacles behind, exclaimed that he saw a flash of a white-tailed bird hurtle down the valley. As we stopped to search for this bird, Bill Harvey stated that there was a deer with a white tail on the road. It was only when we lifted our binoculars did it dawn on us that there was not one but two magnificent Sclater's Monals *Lophophorus sclateri*. We had great views of these spectacular giants, even if they were over 200 m across the valley. They are so seldom seen that almost no photographs exist of them in the wild. Little is known about them other than they are high-altitude birds and Mayodia pass is perhaps the lowest point where you can see them in this area. In 1998, the veteran birder Pratap Singh and R. Suresh Kumar had discovered a new subspecies of Sclater's Monal in western Arunachal. It had an all-white tail and was subsequently named *arunachalensis*. Our birds, with extensive chestnut banding on the tail, could possibly be an intermediate variety between the nominate race and the white-tailed one. We await expert advice.

Chuffed by our success we continued birding down the road, but that day was to prove the leanest, with only few birds seen. This surprised us no end, for the habitat was verdant with little disturbance, but the only birds of any note where Red-headed *Garrulax erythrocephalus* and Black-faced *Garrulax affinis* Laughingthrushes. The commonest birds were Rufous-vented Yuhinas *Yuhina occipitalis*, which seemed to thrive at this point. Another cold night followed, and next morning we packed our bags ands started a leisurely drive down to Hunli, seeing four species of yuhinas and two of fulvettas. A Bar-throated Minla *Minla strigula* and Mrs Gould's Sunbird *Aethopyga gouldiae* showed well. A fast-flying Chestnut Thrush *Turdus rubrocanus* was an added attraction and as usual the Black-throated Sunbirds *A. saturata* were the dominant nectar-feeders. A pair of Himalayan Griffons *Gyps himalayensis* rode the thermals. The other raptors seen here were a displaying of Eurasian Sparrowhawks *Accipiter nisus* and a few Black Eagles *Ictinaetus malayensis*. A possible sighting of a Vivid Niltava *Niltava vivida* caused momentary excitement, but sadly we could not confirm if it indeed was one or some other similar flycatcher.

Hunli is a small town with a pleasant circuit house where we were booked. But the local village headmen (*Gaon Buras*) decided to hold an unscheduled meeting there and occupied our rooms. With some persuasion we managed to retrieve two rooms and spent two comfortable nights in this not-so-cold town. Birding in the garden produced a flock of Common Green Magpies *Cissa chinensis* and a Brown-Flanked Bush-Warbler *Cettia fortipes*. The evening was spent in trying to use the only phone in town, curiously based in the local liquor shop.

The local authorities had warned us that we should not venture beyond Hunli as warring factions of the Idu Mishmi tribes had caused tension in the area. We were glad that we disregarded this advice -- for the next 20 kms proved to be the best birding of the trip. As we drove towards the Ithun River bridge, we were greeted by Slaty-backed *Enicurus schistaceus* and Black-backed *E. immaculatus* Forktails at every turn. A single Kaleej Pheasant *Lophura leucomelanos* hesitantly crossed the road. We stopped to observe some unfamiliar looking White-crested Laughingthrushes *G. leucolophus* and chanced upon a very obliging Coral-billed Scimitar-Babbler *Pomatorhinus ferruginosus*, while the next tree produced a pair of Red-headed Trogons *Harpactes erythrocephalus*. We were rather surprised by the complete lack of woodpeckers, the only one hitherto seen was a lone Rufous *Celeus brachyurus* in the relative lowlands, and we were

Photo: *Ramki Sreenivasan*

The NE race of this widely distributed Himalayan pheasant has a black crest and belly and a white rump. Photographed this male Kaleej Pheasant *Lophura leucomelanos* crossing the road late one evening in Mishmi Hills.

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relieved to see a pair of Large Yellow-naped Woodpeckers *Picus flavinucha* high in the canopy, which also produced the lone Blue-eared Barbet *Megalaima australis* of the trip. Great Barbets *M. virens*, though, were plentiful and were seen and heard all the time.

At the river a fine male Hodgson's Redstart *Phoenicurus hodgsoni* and a Brown Dipper *Cinclus pallasii* added to the day's tally. Himalayan Swiftlets *Collocalia brevirostris* flew overhead and just as we were getting into our cars, a fly-past of eleven Wreathed Hornbills *Aceros undulatus* completed our joy.

Next morning we returned to this magical strip to add Grey-throated *Stachyris nigriceps* and Gold-headed *S. chrysaea* Babbler. Several Red-tailed Minlas *Minla ignotincta* and a single Red-faced Liochicla *Liocichla phoenicea* were seen well. Long-tailed Broadbills *Psarisomus dalhousiae* were always a pleasure to watch and Grey-bellied Tesia *Tesia cyaniventer* a much-prized catch. A fruiting tree produced a clutch of Golden-throated Barbets *M. franklinii* that afforded us a long and leisurely occasion to photograph them. Other birds seen on this stretch were Grey-sided Laughingthrushes *G. caerulatus* and over-flying Barred Cuckoo-Doves *Macropygia unchall*. A solitary Fairy Bluebird *Irena puella* flitted through the trees but Orange-bellied Leafbirds *Chloropsis hardwickii* were common and seen often.

The next morning we started our long drive back to Roing, replaying the wren-babbler tape at every suitable site. In the end, just as were about to give up, a single bird responded to the tape recording and Bill Harvey was fortunate enough to see it, while the rest of us had to be content with a few Black-faced Flycatcher-Warblers *Abroscopus schisticeps*. It might be prudent to point out that while birding in the Mishmi Hills, keep a sharp lookout for a strange animal called the 'mithun'. A semi-domesticated bovine, it is a cross between a gaur *Bos gaurus* and domestic cattle. The more mithuns a Mishmi owns, the higher his status. It is used as bride-price and often, for barter. They are let loose to graze and can turn up at an awkward moment!

In the evening Mr Dhature Meuli, owner of several mithuns and a local politician-cum-businessman, arrived at the resort accompanied by his charming wife, Seppa, and a horde of relatives, servants, and children, and proceeded to cook a traditional Mishmi meal for us. This feast, consisting of several dishes, went on for many hours and was accompanied by the local rice brew that kept us happy but also a bit fuzzy the next morning.

Birding around the camp produced several Pygmy Wren-Babblers, both, the Lesser Racket-tailed *Dicrurus remifer* and Greater Racket-tailed *D. paradiseus* Drongos, and much to our delight, we managed to trace a noisy White-browed Piculet as well as its cousin the Speckled. A pair of hoolock gibbons hooting in the canopy rounded off a great morning—they are India's only ape, restricted to the north-east, and are highly endangered.

Bidding adieu to the Mishmi Hills we crossed the Lohit again, and on this occasion saw some Black Storks *Ciconia nigra*, a White-rumped Vulture *G. bengalensis*, a pair of Great Created Grebes *Podiceps cristatus*, and few Pallas's Gulls *Larus ichthyaetus* on the river. A pair of Mallards *Anas platyrhynchos* sat on a far away island, as did a few Gadwalls *A. strepera*.

We had planned to make a very short visit to the Dibru-Saikowa National Park, near Tinsukia, but our ferry got stuck in the receding river and by the time we extricated ourselves and reached Benu's Camp at Guijan, it was almost dark. A quick boat-ride in the setting sun and the rising moon produced an Indian Short-toed Lark *Calandrella raytal*, and some fast flying ducks. Some felt a flock of Tufted Pochards *Aythya fuligula* could have contained a few Baer's Pochards *Aythya baeri*, but we could not confirm this with any certainty. Ducks seen included Common Teal *A. crecca*, Northern Pintail *A. acuta* and a few Ferruginous Pochards *Aythya nyroca*. The banks of the Dibru River held Little Ringed *Charadrius dubius* and Lesser Sand Plovers *C. mongolus*, besides several Temminck's Stints *Calidris temminckii*. The sudden appearance of a Ganges River dolphin *Platanista gangetica* was a perfect end.

Promising to be back soon, we proceed to Dibrugarh, where we stayed at the luxurious, colonial and enchanting Mancotta Chang Bungalow run by the charming Manoj and Vineeta Jalan, who served us a most delicious meal that night. This bungalow, built on stilts, used to be the residence of the manager of the tea garden; the Jalans have restored it to its original colonial glory and run it as a hotel. If you ever happen to be in this part of the world, don't miss it. After days of roughing out in the wilds, we had a terrific sleep to the call of Spotted Owlets *Athene brama*.

Early next morning saw us at the nearby Jokai forest and, in the few hours that we spent there, we found several Small Niltavas *N. macgrigoriae*, Common Ioras *Aegithina tiphia*, a pair of Little Pied Flycatchers *Ficedula westermanni*, Black-winged *Coracina melaschistos* and Large *C. macei* Cuckoo-Shrikes and numerous Pompadour Green-Pigeons *Treron pompadora*. An Emerald Dove *Chalcophaps indica* walked nonchalantly on the path. The birds here are obviously well protected and were not shy at all. A visit to the Jokai forests is well recommended.

All in all it was a great trip to a largely unknown and understudied area. Though we did not see many of the species mentioned by King and Eaton, we still managed to spot many beauties such as Golden-headed Babbler, Rufous-bellied Shrike-Babbler *Pteruthius rufiventer*, Streak-throated Fulvetta and the two species of Barwings. The star, of course, was the Sclater's Monal followed by the Large-billed Blue-Flycatcher. In hindsight, perhaps we should have kept a few more days in hand, including some for the enigmatic Dibru-Saikowa.

As we proceeded home, the words of Frank Kingdon-Ward rang in my mind, "Behind the mountain lies the garden of God."

Itinerary: 18–25 November 2007

Day 1: Arrive Dibrugarh Airport, Assam from Kolkata and proceed by road to Sikhowa Ghat on the banks of the Lohit River. 2 hour ferry crossing at Saikhowa Ghat and then by road to Roing, Lower Dibang Valley, Arunachal Pradesh. Overnight at 'Dibang Valley Jungle Camp'.

Day 2: A.M. Birding around 'Dibang Valley Jungle Camp' thereafter proceeding by road to Mayodia Pass with birding on the way. Arrive Mayodia Pass area in the afternoon and overnight at 'Coffee-House', Mayodia.

Day 3: Full day birding around Mayodia Pass. Overnight at 'Coffee-House', Mayodia.

Day 4: Drive to Hunli with birding stops on the way. Afternoon drive to Itapani River area. Overnight at Hunli Circuit House.

Day 5: A.M. Birding around Itapani River and afternoon birding around Hunli. Overnight at Hunli Circuit House.

Day 6: Drive to Roing with birding stops on the way. Evening arrival at Roing. Overnight at 'Dibang Valley Jungle Camp'.

Day 7: A.M. Birding around 'Dibang Valley Jungle Camp' thereafter departure for Dibrugarh. Afternoon boat ride at Dibru-Saikhowanational Park. Overnight at 'Mancotta Chang Bungalow', Dibrugarh.

Day 8: A.M. Birding at Jokai Forest, Dibrugarh. Mid-day flight back to base.

– Sumit Sen

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In search of the Bugun Liocichla and other parables from Eaglenest: 28 February–8 March 2009[1]

Bikram Grewal

Grewal, B. 2009. In search of the Bugun Liocichla and other parables from Eaglenest. *Indian Birds* 5 (3): 65–69.
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At the end of 2008, at a birder's hug-fest in Bangalore, I had the pleasure of meeting Dr Ramana Athreya of whom I had heard much. He had not only found a new species of bird—the Bugun Liocichla *Liocichla bugunorum* (of which more anon) but also had, almost single-handedly, converted Eaglenest into the hottest birding spot in India today. I had, over the last few years, read tantalizing reports of birders returning from this little-visited spot in western Arunachal, with names of birds like Ward's Trogon *Harpactes wardi*, Beautiful Nuthatch *Sitta formosa* and Slender-billed Scimitar Babbler *Xiphirhynchus superciliaris*, birds that I had dreamt of and reconciled not to seeing in this lifetime. I returned to Delhi and soon managed to erase Eaglenest from my mind. A few months later Ramki Sreenivasan and I were birding in the Sat Tal area of Kumaon, when he casually mentioned that he was going to Eaglenest in a few weeks' times and had made all the requisite arrangements and I was more than welcome to join him. All I had to do was to buy a ticket! He made it sound so simple. Without hesitation I nodded my head in affirmation and started reading up all I could find on the area, which incidentally wasn't a great deal.

The first thing I learnt was that it was simply called Eaglenest—not Eagle's Nest or even Eagles Nest. This 218 km^2 park was supposedly named after the 4th Indian Army division, which had a red eagle as it's standard and which was posted in the area in the 1950s. I still don't know the veracity of this claim but it is a good story anyway. The second thing I learnt was that Eaglenest lay along an abandoned, but jeep-able track, that ran from approximately the Lama Camp 2,350 m through the highest point on the road at Eaglenest Pass 2,800 m (the official starting point of the sanctuary), then descended to Sunderview 2,465 m, Chakoo 2,405 m through the abandoned GREF camps at Bompu 1,940 m and Sessni 1,250 m, and finally down to Khellong 750 m in the plains. As can be seen from the relative heights, it covers a vast range of altitudes, and this is reflected in the changing habitats and, in turn, in its birdlife. The road has a rather interesting history. Till India's defeat in the war with China in 1961, this was the only road that connected the Tawang Monastery to lowland Assam. From Tawang, the road went over the Sela Pass before reaching Bomdila and then on to Tenga, before turning right and taking the route mentioned above, till it passed Khellong, and went on via Doimara and Missamari before hitting Assam near Balipara and Tezpur. It was on this road that the Dalai Lama fled, when he escaped the Chinese in March of 1959. He was weakened by dysentery and could not ride a horse as befitted his stature. Instead he had to be carried on a '*dzo*', a hybrid between a yak and a cow and considered the lowest form of transportation. I wondered what he made of this evergreen forest, and did he tarry to admire the birds?

In due course of time the army constructed a new highway connecting Tenga to Bhalukpong, on its way to Tezpur, and our famous road fell into disuse and disrepair, which is probably why the forests on either side are still intact. A few years back the Border Roads Division revived a plan to convert it in to an all-weather highway and started blasting some cliffs to correct certain alignments. Luckily the Supreme Court intervened and the army pulled out, but not before destabilizing parts of the area, which are still prone to landslides during the rains. The road is now maintained by the Bugun tribe and used mostly by birders, bar an occasional thief or murderer fleeing the authorities!

Birders might consider Eaglenest a paradise, but in the eyes of the Forest Department, it is completely insignificant, and in the eight days we were there, we did not meet a single forest personnel, which might be a good thing in the long run! In fact, Eaglenest is, administratively, under the officer-in-charge of the Pakke Tiger Reserve, who sits in splendid isolation in far-away Seijusa. This forest is now effectively "looked-after" by members of the resident Bugun tribe and its elder, the splendidly named, Indi Glow. Ramana has fashioned things in such a manner that the Buguns are now stakeholders in the continued existence of the sanctuary. They run the birdwatching camps, generating income and therefore it is in their interest to stop traditional hunting, *jhoom* or shifting cultivation and to prevent the poaching of timber from these forests.

The area we were going to visit lies mostly in the districts of East Kameng, and West Kameng, which are located in western Arunachal Pradesh and are high in elevation. They are named after the fast flowing Kameng River (known downstream, in Assam, as the Jia Bhorelli), and which drains both the basins of Gori Chen and Kangto peaks and the Buddhist Monastery of Tawang. This region lies below the Himalayan watershed and borders Tibet in the north and Bhutan in the west. Eaglenest is contiguous with the Pakke Tiger Reserve and the Sessa Orchid Sanctuary and along with Nameri in Assam, forms the last great stretch of pristine forest left in India. If you add the adjoining Dirang-Tawang area, then you certainly have the greatest birding hotspot in India, comparable to any in the world. Luckily the pressures of human population are minimal here in Arunachal and this, along with its logistical isolation, has helped in its continuing existence.

So it was with great excitement that we all met at Kolkata airport on the last day of February 2009 to catch the red-eye flight to Guwahati. Ramki had arranged for us to be guided by Shashank Dalvi, who had helped Ramana document the fauna of Eaglenest. I had heard many good things about him, but when I espied this man-child through sleep-ridden eyes I was suddenly filled with doubt. How can this boy, barely out of his teens, lead us veterans, I asked Ramki, who just smiled back ominously. Never in my life have I been happier to be proved wrong, for this adolescent not only knows Eaglenest like the proverbial back-of-his-hand, I have never met anyone who knows bird-calls better. I strongly advocate that

[1] [Editors' Note: A slightly modified version of this article was earlier published on http://www.kolkatabirds.com/hillbirdsofind/eaglenesttrip2009.htm. We are grateful to the author as well as the owners of the website for permitting us to use this article.]

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anyone venturing into Eaglenest should have him by his side. He will surely double the number of birds you will see. An uneventful hour later we were at Guwahati airport and made our acquaintance with the first of the several eccentric charmers who make a visit to Eaglenest so memorable. This was our driver, Gopal, who was to chauffeur us for the entire trip, through some rather treacherous stretches of mountain roads. Gopal spent the first day testing how far he could push us, but once he accepted that we were hard nuts to crack, he quickly fell into line and was pleasant and helpful for the rest of the trip. He was passionate about his mobile phone, on which he constantly played music, and often, simultaneously, games. He also knew every pretty woman on the stretch between Bhalukpong and Eaglenest. For some unknown reason he was re-christened "Gopley" by the end of the first evening and the name stuck, an occurrence he took with equanimity.

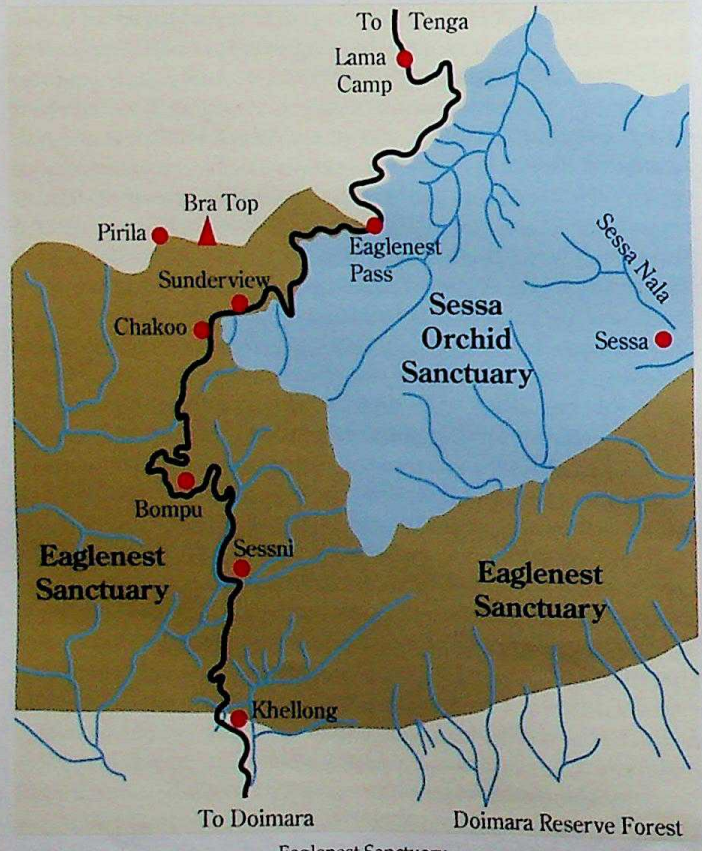
Our first stop was the rubbish dump, just west of Guwahati city. It is tucked away from the road, but soaring adjutants give away its location. The rubbish dump held two kinds of scavengers, the first were of the avian variety, with approximately one third of the world's population of Greater Adjutant *Leptoptilos dubius* present in this one place. The other was the human scavenger who sifted through the rubbish to salvage any thing that could be recycled. It was not a pleasant place and despite the plethora of both species of the stork (*L. dubius* and *L. javanicus*), we made a quick getaway as soon as Ramki declared him satisfied with the pictures he wanted.

Shashank had arranged for us to have lunch at the Eco Camp, on the edge of Nameri National Park. Both Ramki and I had made earlier jaunts to this park, which is considered to be the last haunt of the White-winged Wood Duck *Cairina scutulata*. Ramki had managed six of them in one frame and I had seen none! Enough to turn anyone into an agnostic! On this occasion we had no time to give it another go, so had to be satisfied with the three Oriental Hobbies *Falco severus* that hang around the tall trees at the entrance of the charming lodge. In between wolfing our lunch Ramki managed to get his photographer's itch out of the way by shooting Red-breasted Parakeets *Psittacula alexandri*, Hill Mynas *Gracula religiosa*, and Black-hooded Orioles *Oriolus xanthornus* that screech their way through the leafy compound. As we drove on we saw the eastern Indian specialties—the Black-billed Roller *Eurystomus orientalis* and the Black-headed Long-tailed Shrike *Lanius schach tricolor* sitting on telephone wires. It is also along this section that several hundred Amur Falcons *F. amurensis* congregate during their migration, making for a thrilling sight. Our next stop was Bhalukpong where we entered Arunachal Pradesh, after getting our permits checked by a desultory guard. We drove along the Kameng River, through the Pakke Tiger Reserve and then the Sessa Orchid Sanctuary. The forests on either side seemed so tempting and inviting but we had to move on if we were to reach Lama Camp at a sensible hour. The only time when Shashank allowed us to stop was when we got down to scan promising looking streams for that most elusive of kingfishers—Blyth's *Alcedo hercules*. We drew a blank on the first rivulet but at the second one, Shashank found a distant blue speck that was certainly not a Common Kingfisher *A. atthis*! It was far away and we looked at it for several minutes before finally declaring it to be a Blyth's. I wish we could have photographed it as proof (mostly for our sceptical friend Sumit Sen), but the terrain defeated even Ramki.

We moved on and reached, by dusk, the unattractive military cantonment town of Tenga, where we searched, unsuccessfully, for diesel, while Gopley renewed his acquaintance with the local beauties. We turned left here and almost immediately started climbing past the settlement of Ramalingam. It was very dark by now and I was worried that Gopley would doze and thus veer off the steep escarpment, and endeavored, with Shasank, to engage him in incessant banter. Suddenly the car's headlamps picked up a uniform rufous-coloured cat on the dirt-track, but it quickly scampered off, not before we saw a strong black tip at the end of its tail, which helped us confirm that it was indeed the seldom-seen and extremely rare Golden Cat *Pardofelis temminckii*. A good omen at the start of our trip.

We limped wearily into Lama Camp. It had been a long day and we were tired. We trooped into the dining room where a wood stove struggled weakly to emit heat. It was freezing and we were soon wearing all that we owned. I knew it was going to be bitterly freezing at night and took the precaution of dipping heavily into Scotland's finest malt—Dalmore. The fact that Shashank's surname shared the first three letters with the afore-mentioned tipple resulted in him being referred to as Mr Dalmore for the rest of the trip. We also get acquainted with another charmer, a person so small in age and size that he made Shashank look definitely middle-aged. It would be some years before his chin would make contact with one of Mr Gillette's inventions. He was called "Ugh-oo" and was to become our bottle-wash, general dogs body and occasional cook on our trip. We hungrily gulped our food and retired to our tents. The ever-willing and smiling staff had loaded our beds with additional blankets and put in hot-water bottles, but despite their concern I spent the night tossing and turning in the cold. Never before have I slept with gloves on! Sunrise came as a relief, and having had our mandatory cup of tea, we ventured out on to the road.

This stretch, around Lama Camp, is a traditional community forest belonging to the Buguns and consists mostly of degraded forest and some bamboo groves. Occasionally a magnolia tree, in full bloom, would make for an interesting break in the overall greenery. And these forests hid, for many long years, a secret that Ramana first glimpsed as early as January 1995. He saw a strange bird that he could not identify and whose description was missing from all books. Some suggested that it might be the Emei Shan Liocichla



Eaglenest Sanctuary

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Liocichla omeiensis, but the closest one occurred a thousand miles away. In 2006, he managed to mist-net two specimens, with the forest department, and announced the discovery of a new bird to an astonished world. With tremendous generosity he called it the Bugun Liocichla *Liocichla bugunorum* after the local tribe. I spent a great deal of my time in Eaglenest, wondering if I would have done the same, and at the end of my introspection declared, but only to myself, that I would have named it Mrs. Grewal's Liocichla for the sake of domestic harmony, and I felt much better at that thought!

This bird, after its startling discovery, has proved why it remained unknown for so long. Only a score of specimens have been seen since and all in this area—bar one. It was our endevour to see it today, before descending to Bompu Camp, as Lama had been spoken for that night by a group of birders Ramana was bringing in. Our intrepid leader, Mr Dalmore, now bedecked in an assortment of apparel, started playing the call of the Bugun Liocichla. He had told us that it preferred being part of bird-armies and is seen most in the company of barwings. We stood on the road and looked below us. A single Blue Whistling Thrush *Myophonus caeruleus* searched for food in the leaf litter and Beautiful Sibias *Heterophasia pulchella*, the first of several hundred we saw, flitted from tree to tree. Striated Laughingthrushes *Garrulax striatus* were not uncommon and the recently-split Bhutan Laughingthrush *G. imbricatus* behaved exactly like its commoner cousins the Streaked Laughingthrush *G. lineatus* of northern India. We also kept an eye out for the Yellow-rumped Honeyguide *Indicator xanthonotus*, which has been seen in this area. But we got no sight of either the honeyguide or the liocichla—and returned reluctantly to camp for breakfast. I decided to take a walk along a small trail that led behind our tents, and was soon rewarded with a dazzling sight of a brilliantly-coloured male Rufous-Breasted Bush Robin *Tarsiger hyperythrus*, a bird that I had never seen before. I got quite excited and called to Ramki and by the end of the day we had seen two males and five females. We gave the newly discovered bird another go, with disappointing results, and finally packed our bags and departed, heartbroken, for newer pastures.

We rose steadily and were soon enveloped by heavy mist, taxing even the powers of the reliable Gopley. A small signpost announced that we were entering the portals of Eaglenest Wildlife Sanctuary and indeed the landscape changed immediately at the crest. Small to medium height bamboo now covered the wet earth and the icy wind stung our eyes. This inclemency notwithstanding, Shashank found a pair of Streak-breasted Scimitar Babblers *Pomatorhinus ruficollis* and soon Ramki and he were in hot pursuit. I, being slighter more worm-eaten, declined this chase, content with a gentler option, and was given an excellent view of a Grey-bellied Tesia *Tesia cyaniventer*. Ugh-oo and Gopley had, by now, got a crackling fire going in the middle of the road and were warming their fronts and bottoms alternately when I arrived and joined them. The enterprising duo returned with the news that they managed to photograph a Brown Parrotbill *Paradoxornis unicolor*, a rare bird, known to be found at this point. We descended slowly, stopping when Shashank heard a call. He would conjure up several strange sounds from his lips and more often than not they elicited some sort of response. If that failed he would fiddle with his tape recorder and play birdcalls. On one such occasion he called out a Bar-winged Wren-Babbler *Spelaeornis troglodytoides*, one of natures great skulkers. It was a thrilling moment! We saw this diminutive bird, relatively in the open, and Ramki even managed to get a perfectly good photograph. We walked on, flushing a nervy Ashy Wood-Pigeon *Columba pulchricollis*, but getting good views of a Collared Owlet *Glaucidium brodiei* and a roosting Grey Nightjar *Caprimulgus indicus*. Several times we disturbed flocks of Olive-backed Pipits *Anthus hodgsoni*, feeding on the road, and were pleasantly startled when a flock of about forty White-collared Blackbirds *Turdus albocinctus* suddenly crossed the road in single file. There seems to be some dispute about which species of tragopans are found in the park, with the Temminck's *Tragopan temminckii* and Blyth's *T. blythii* being certain, but whether the Satyr *T. satyra* is found, is debatable. In any case we saw neither!

Our two primary targets on this stretch for the day were the enigmatic Ward's Trogon *Harpactes wardi* and the Beautiful Nuthatch *Sitta formosa*, but there was no sign of either. We saw single specimens of Black-faced *G. affinis* and Red-headed *G. erythrocephalus* Laughingthrush and towards the end of the day managed one each of Scaly *G. subunicolor* and Spotted *G. ocellatus* Laughingthrush, both of which were lifers for me. Talking of 'lifers', my fellow traveller counts his day by the number of "P-lifers" he gets. As you've guessed, it simply means how many new birds he has managed to photograph. Therefore our numbers never tallied, he trailing me, naturally, by a large score. This day he managed to do well with the yuhinas, getting the Whiskered *Yuhina flavicollis*, Stripe-throated *Y. gularis*, and Rufous-vented *Y. occipitalis*. He added the Yellow-throated Fulvetta *Alcippe cinerea* to his kitty and I think it was a happy Ramki who entered Bompu Camp that evening. Bompu, in the local vernacular, means bamboo and the camp is surrounded by tall groves. These are often inhabited by wild elephants and many trip reports talk of the occupants being kept awake all night by these giants. We had no such problem that night and were soon asleep in the slightly warmer conditions. Another reason for our peaceful sleep was the excellent dinner, prepared under difficult circumstances, by yet another charmer, simply called 'Chinese', on account of his ability to turn-up a good vegetable chowmein! Thus ended out first full day of birding. I had expected to see more birds, but their thinness on the ground was more than compensated by their uncommonness.

The day dawned bright and crisp and I instinctively knew that it would be a good one for us. While breakfast was being readied, we walked to a nearby knoll and Shashank picked up a call of a bird I had wanted to see all along, for a strange reason. The bird was a Broad-billed Warbler *Tickellia hodgsoni*, but its scientific name consisted of the two names of my favorite birders of yore—a certain Mr Samuel Tickell and Mr Brian Hodgson, both of whom played very significant roles in the history of Indian ornithology. Needless to say that when the bird finally showed itself, (looks superficially like a Mountain Tailorbird *Orthotomus cuculatus*), I was extremely pleased, which is more than I can say for Ramki who failed to get a p-lifer, though a Black-faced Warbler *Abroscopus schisticeps* was some compensation. Post-breakfast we started walking back towards Lama Camp, as Shashank wanted to call out another specialty of Eaglenest—the strange-looking Wedge-billed Babbler *Sphenocichla humei*. We played our tape at several suitable locations but failed to elicit a response. We were slightly luckier with its smaller sibling, the Rufous-throated Wren-Babbler *S. caudatus*, and actually had two specimens in our sights. We reached an area called 'Bhoot Kollai', an excellent bit of cloud forest, where Ramki, on a previous trip, had photographed a Ward's Trogon *Harpactes wardi*. We scanned what little we could see through the mist and just managed to get a fleeting glimpse of a high-flying pair of Ward's Trogon—a very unsatisfactory sighting. We searched for another 30 min and called it off. Now a dilemma presented itself to me ,and I debated whether the sighting was good enough to qualify a tick in my well-thumbed guidebook. Technically I could, but I decided I would not, leaving this wonderful beauty on my wish list. The power of superstition! We moved on, bumping into Ramana, and his troop who too were looking for the same bird.

A pair of Darjeeling Woodpeckers *Dendrocopos darjellensis* cheered us up. We saw both the Rufous-gorgeted *Ficedula strophiata* and the White-gorgeted *F. monileger* Flycatchers in the same area.

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A pair of Kaleej Pheasants *Lophura leucomelanos* scuttled across the road before Ramki could lift his camera. A single Rufous-necked Hornbill *Aceros nipalensis* flew overhead, another unsatisfactory lifer. We had been hearing this bird all over but had failed to see it, so I was happy that at least I had managed some sort of a look. A Golden Babbler *Stachyris chrysaea* popped out and disappeared as quickly, but we did well with fulvettas, notching up the Golden-breasted *Alcippe chrysotis*, Yellow-throated *A. cinerea*, and the Rufous-winged *A. castaneceps*. When we reached the abandoned camp at Chakoo, we decided to turn back. I had read somewhere that Chakoo was the remotest polling booth in India, with a total electorate of just three people. I tried to imagine a bureaucrat huffing and puffing his way here, with a chair and a table, awaiting these three worthies to turn up and exercise their franchise, and all along hoping that an errant elephant didn't cross his path.

We returned to Bhoot Kollai where our tapes brought an urgent response. We scrambled up the banks into the mossy forest and were immediately rewarded with extremely close views of a brilliant male Ward's Trogon *Harpactes wardi* and soon after, by another. The equally showy female, not to be outdone, appeared and flitted from branch to branch, posing for us. They would, as trogons often do, sit on a branch close by, but with their back to us as if oblivious of our presence. For over an hour they performed for us - hawking insects, leaving us spellbound.

That night I was woken up, from deep slumber, by the call of a Mountain Scops Owl *Otus spilocephalus*. The call was so loud that I reckoned it was within ten feet of me, and I quickly put on my torch to look for my slippers. The moment the light came on inside the tent, the owl went quiet, and I retuned to bed. Within ten minutes it started again. This sequence was played out at least four times and finally I got out of my tent and heard the bird fly away in a *whirr* of wings. Till date I have never met a person who has actually seen this bird, and very few pictures exist.

Next morning I discussed with Shasank, that I was getting a bit worried that the so called "locally common" Beautiful Nuthatch *Sitta formosa* had not been seen yet and he assured me that no person had left Eaglenest without seeing this bird. I countered that I held many such records and was loathe to attach yet another to my name! He just smiled nonchalantly and so I kept quiet. We decided to give the wren-babblers a go, and strolled along to a nearby stream, which also was the water source for the Bompu camp. As Shashank looked for suitable places to play his calls, Ramki and I managed to see both the Slaty-backed *Enicurus schistaceus* and Spotted *E. maculatus* Forktails. Soon Shashank called for us and we scurried over just in time to get a fleeting glimpse of an Eye-browed Wren-babbler *Napothera epilepidota*. The diminutive Chestnut-headed Tesia *Tesia castaneocoronata* drove us completely insane by popping up at different places in a plot of damp shrubbery, but never long enough to get a good look. But it was to be a good day for the *Stachyris* babblers and we soon ticked Rufous-fronted *S. rufifrons*, Rufous-capped *S. ruficeps*, Golden *S. chrysaea*, and Grey-throated *S. nigriceps*. We did well too on fulvettas, including the first Nepal *Alcippe nipalensis* of the trip. So far we hadn't had a great time with the raptors, other than a Black Eagle *Ictinaetus malayensis* daily, but today's tally included a magnificent flying Mountain Hawk-Eagle *Spizaetus nipalensis* and the humbler Oriental Honey Buzzard *Pernis ptilorhynchus*. Our attempts to find the Beautiful Nuthatches continued to be futile and we returned to camp for lunch.

We decided to chance our luck by descending towards Sessni and beyond. A good move, for almost the first bird we saw was the gorgeous Sultan Tit *Melanochlora sultanea* at eye-level, a dream species for Ramki. Other interesting birds included Grey-chinned Minivet *Pericrocotus solaris*, Large Woodshrike *Tephrodornis gularis* and Mountain Bulbul *Hypsipetes mcclellandii*. A little lower down a Coral-billed Scimitar Babbler *Pomatorhinus ferruginosus* showed for a few seconds in a mixed hunting flock consisting of Rusty-fronted *Actinodura egertoni* and Streak-throated *A. waldeni* Barwings, Bronzed *Dicrurus aeneus* and a Lesser Racket-tailed *D. remifer* Drongo but alas no sign of our nuthatches. A flowering Indian Coral tree, by the side of the road, played host to a single, extremely aggressive Streaked Spiderhunter *Arachnothera magna* that drove terror into the hearts of the Orange-bellied Leafbirds *Chloropsis hardwickii* and the much larger Long-tailed Sibias *Heterophasia picaoides*, who also vied for the spring nectar. Since the birds were intent on feeding and showed no fear of us, it allowed Ramki the freedom of taking out his large lens and tripod. The results, as expected, were spectacular. Soon we reached an area where the landscape opened up a bit, on either side, and my eyes fell upon a strange bird I had never seen before and which Shashank identified as Grey-headed Parrotbill *P. gularis*, a bird seldom reported from India. Much energized by this sighting we scanned the terrain and found a tangly bit of open ground from where a dozen or so Red-faced Liocichla *L. phoenicea* emerged, one after the other, but so fast that a salivating Ramki did not even have the time to react.

We moved on towards Khellong, seeing a pair of Wreathed Hornbills *Aceros undulatus* fly across the horizon. We managed to get telephone signals at a certain spot and rang our families and learnt about the dastardly attack on the Sri Lankan cricket team in Pakistan for the first time. We turned back and saw the first of the four male Red-headed Trogons *Harpactes erythrocephalus* of the day. A pair of Kaleej Pheasant suddenly crossed the road, taking Ramki by surprise. As we neared camp, we came upon a Large-tailed Nightjar *C. macrurus* next to the road, and managed to get within three feet of the bird, photographed it, and left it to its own devices. It had been a good day but still no Beautiful Nuthatch—true panic was setting in. Tonight was to be our last night at Bompu and tomorrow we would move to the lower camp at Sessni, technically too low for the nuthatch. Shashank was still optimistic, citing several occasions when he had espied this bird in lower elevations, and which by now, to me, had attained an almost a mythical status.

The day started well enough with an over-flying Crested Serpent Eagle *Spilornis cheela* and then a pair of Rufous-necked Hornbills sitting in the open, though a trifle far. We were well camouflaged, so Ramki could take the liberty of using his larger lens and tripod. Shashank told me that you could decipher the age of this species of hornbill by the number of notches on its casque. I decided to believe him till someone proved otherwise! We walked on and suddenly came across a huge bird army crossing the road. Members whizzed past like miniature jet-fighters and by the time you picked up a bird in your binoculars, it had gone. I was so confused that I decided to use just my bare eyes and picked up a Slender-billed Scimitar Babbler *Xiphirhynchus superciliaris*, several Greater Rufous-headed Parrotbills *P. ruficeps* and Rufous-backed Sibias *Heterophasia annectans*. There were several other species in the group but I was too dazzled to figure out what they were—but now understand why the Arunachal bird armies have such an awesome reputation. I am sure there were some Beautiful Nuthatches and Cutias *Cutia nipalensis* in the flock but they escaped our collective attention. We stopped to recover our breath, when Shashank pointed out a dark-looking thrush. Ramki, who is always alert to such situations, turned his camera around and managed three quick shots. Instant replay showed it to be a Red-faced Liocichla *L. phoenicea* and Ramki's picture is the best I have ever seen of this master skulker. Another good bird we saw later was the Scarlet Finch *Haematospiza sipahi* which stood out like a sore thumb in the greenery.

We drove down past the flowering tree with the resident spiderhunter, towards Khellong. I was very keen to go down to the Doimara River bridge, where we had a chance to see the White-

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crowned Forktail *E. leschenaulti* and perhaps a Blyth's Kingfisher. And also the Pied Falconet *Microhierax melanoleucos*, which prefers this altitude, but a landslide halted our progress, and reluctantly we had to turn back. We decided to bird at this lower height and saw White-crested Laughingthrush *G. leucolophus*, Greater Yellownape *Picus flavinucha* and Striated Bulbul *Pycnonotus striatus*. But no Beautiful Nuthatch. Next morning we said our goodbyes to Bompu and the smiling staff and drove slowly down.

A Barred Cuckoo-Dove *Macropygia unchall* twisted its way out through the branches when it saw us, but a pair of Mountain Imperial Pigeon *Ducula badia* thought that remaining still was a better way of defense, but they did not escape the eagle-eye of our guide and Ramki took some good pictures. A few Himalayan Swiftlets *Collocalia brevirostris* cruised the sky while a Golden-throated Barbet *Megalaima franklinii* was finally located for Ramki to photograph. A Black-winged Cuckoo-Shrike *Coracina melaschistos*, in the company of Rufous-backed Sibias *Heterophasia annectans*, brought temporary hope about the nuthatches, as they are usually accompanied by them in bird waves, but in this case the army had swept past and these were only the stragglers. Red-headed *G. erythrocephalus* and Striated *G. striatus* Laughingthrushes were seen, as was a single Black-eared Shrike-Babbler *Pteruthius melanotis*. We saw both the Rusty-flanked *Certhia nipalensis* and the Brown-throated *C. discolor* Treecreepers. All in all a regular day, with a few good birds, but none of the stars revealed themselves.

Sessni literally means stinging nettle, and this pernicious weed surrounds the camp, but the real threat came from a small mite that rejoices under the name of Dam-Dim. Found at lower altitudes (I had first encountered it in the Mishmi Hills of Eastern Arunachal) their bite is so noxious that the afflicted area gets swollen and the bite itself starts suppurating. Needless to say, I was the only person to be attacked, and both my hands swelled and would not fit my gloves. I was miserable and the wounds remained infected well after I returned home. I did not sleep well that night, due to the pain, and told my companions that I would not join them for the pre-breakfast jaunt. While I awaited their return I took a little stroll and saw a perky Golden Bush Robin *Tarsiger chrysaeus* hop around, above our tents.

Today was a do-or-die day. We would drive all day, first heading down to Khellong and then turning around and traversing the entire length of Eaglenest before reaching Lama Camp. We packed out bags and hit the road keeping a sharp eye for any major bird movement. A Collared Owlet *Glaucidium brodiei* and a Red-headed Trogon *H. erythrocephalus* where the first birds we saw and finally a Slaty-blue Flycatcher *Ficedula tricolor* revealed itself. I was very keen to see a Pale-capped Woodpecker *Gecinulus grantia* and though we heard the Bay *Blythipicus pyrrhotis* a few times we saw neither of these rare and localised woodpeckers. We walked large distances and suddenly I screamed to my mates that I had a Black-headed Shrike-babbler *P. rufiventer* in my sights. It turned out to be a Rufous-backed Sibia *Heterophasia annectans* and what is more important a member of a large bird army. Shashank, clutching to this last straw, produced two Beautiful Nuthatches, which we saw very well. And as if on cue, a visibly relieved Ramana turned up and his group too had good views. Whew!

We turned around as we had a long way to go and the weather was not looking too promising. We stopped at a stream called Hathi Nullah, to scan for forktails when we saw a large family of small-clawed otters *Aonyx cinerea* and were totally flummoxed by this unexpected bonus. The rest of the day was almost a washout, due to the weather, and we drove fast to reach Lama before the clouds broke. Shashank was also expecting some friends of his to turn up that night. This charming couple from Mumbai, Mandar and Pallavi, ostensibly got married three days earlier, after a long courtship, and decided to spend their honeymoon birding in the area. It seems they took this major step, as it was the only way their leave would be sanctioned. What people will do to birdwatch and it surely takes all sorts to make this world! In the event they turned out to be keen as mustard and obviously thrilled by their first trip to north-eastern India. Pallavi was an excellent cook to boot and supplemented Ugh-oo's efforts that night.

Next day was to be our last in Eaglenest and the entire day was to be devoted in quest of the Bugun Liocichla. Our newfound friends from Mumbai turned out to be excellent birders and we now had five pairs of eyes concentrating on the job at hand. We walked down from the camp to a point, where in the previous week, an all-girls birding group from Delhi had seen the bird. They were friends of mine, and I had exchanged gossip with them from the airport. They were disappointed that they had dipped on the trogon but had goodish views of the liocichla. I was convinced that my case would to be the reverse. Ramki had seen and photographed this bird on his last trip but was as keen, nonetheless. We scanned the valley below us as we had done on the first day, turning up pretty much the same birds, but no sign of our star. We saw a huge truck overloaded with freshly cut bamboo emerge from the forest and we wondered if this was the beginning of the end?

An hour later we moved on to a dry streambed when suddenly a pair of birds emerged from somewhere and dived into a bush. We got a brief glimpse of the liocichla but was it good enough to merit a tick? Probably not. The newly-weds were busy ticking off all the new birds they were seeing and by lunchtime had amassed a healthy score. Reluctantly we returned for lunch and I philosophically paraphrased Mahatma Gandhi to Shashank as why the toil was more important than the reward. He wasn't impressed and became even more determined to give us a 'proper' view. Back down the road again, and more disappointments. A Himalayan Buzzard *Buteo buteo* of the *burmanicus* race was seen soaring and a Streak-breasted Scimitar Babbler *P. ruficollis* swelled our friend's list. It started to turn dark and I was ready to sound the retreat, when a group of barwings hopped out and Shashank confidently declared that we would now see our elusive liocichla. He was absolutely correct, for a few seconds later a pair hopped out, posed for us for a second and disappeared. Mission successful. Shashank was declared a hero and we retired, tired but happy, to polish off the remnants of our dwindling stock.

So ended our fairy-tale sojourn in this fabled and blessed land and as I write this report a few weeks later, I have just heard that our hero Shashank Dalvi Esq. alias Mr Dalmore has since found four additional haunts of the Hodgson's Frogmouth! Any moment the phone will ring and Ramki will say, "We are all meeting tomorrow at Guwahati airport, at noon. See you there."

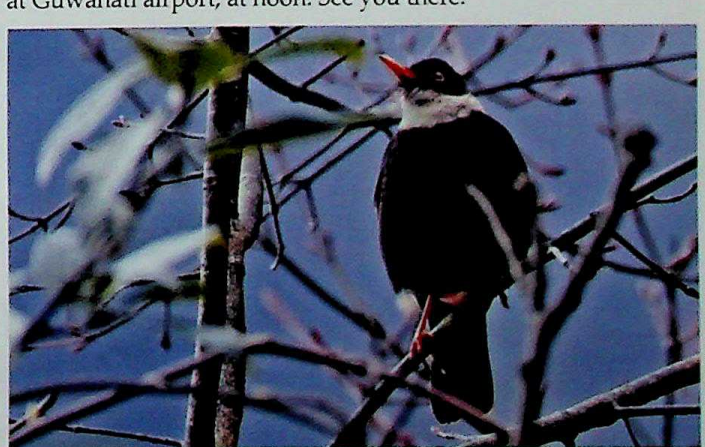

Photo: *Ramki Sreenivasan*

We encountered a flock of about fifty of these high-altitude White-collared Blackbirds *Turdus albocinctus* at the Eaglenest Pass (2,800 m). The birds were very shy and we had to photograph them from inside our jeep.

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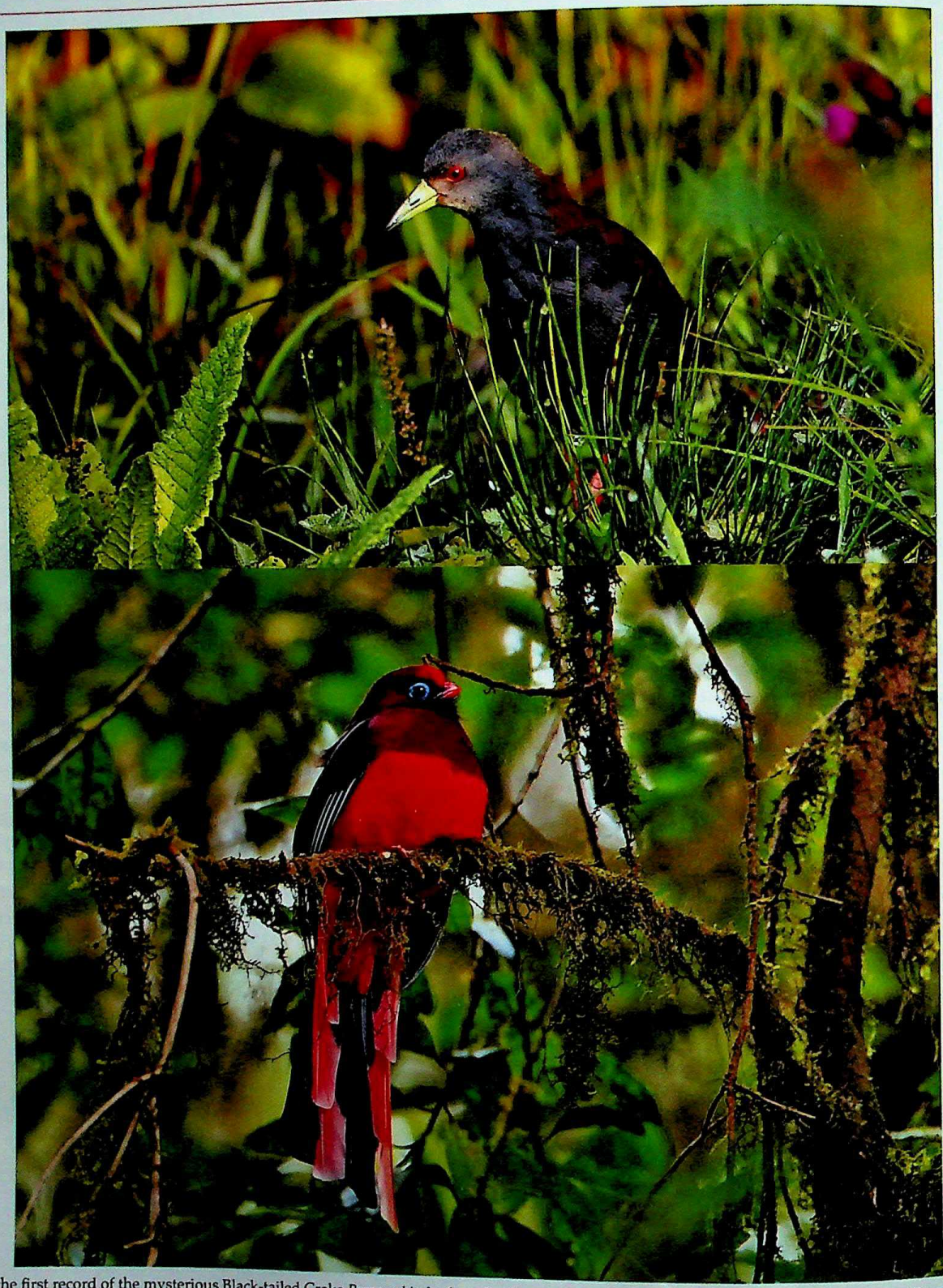
Photo gallery: birds of Arunachal Pradesh

Ramki Sreenivasan

Sreenivasan, R. 2009. Photo gallery: birds of Arunachal Pradesh, *Indian Birds* 5 (3): 70—79.



Photos: *Ramki Sreenivasan*

Top: This is the first record of the mysterious Black-tailed Crake *Porzana bicolor* from Eaglenest. It was photographed at Ramaling (between Lama Camp and Tenga) at 0400 hrs. Though occasionally seen in some parts of the Assam plains (like Manas), this bird is keenly sought by birders. **Bottom:** One of Arunachal's rare specialties (not to mention India!), Ward's Trogon *Harpactes wardii* can often be seen in Eaglenest—especially in the cloud forests near Bompu. Ironically these were the first of the trogons I photographed, though I live very close to its Malabar cousins! We spent over an hour with this male, which was busy hawking insects, and sometimes would land just above our heads.

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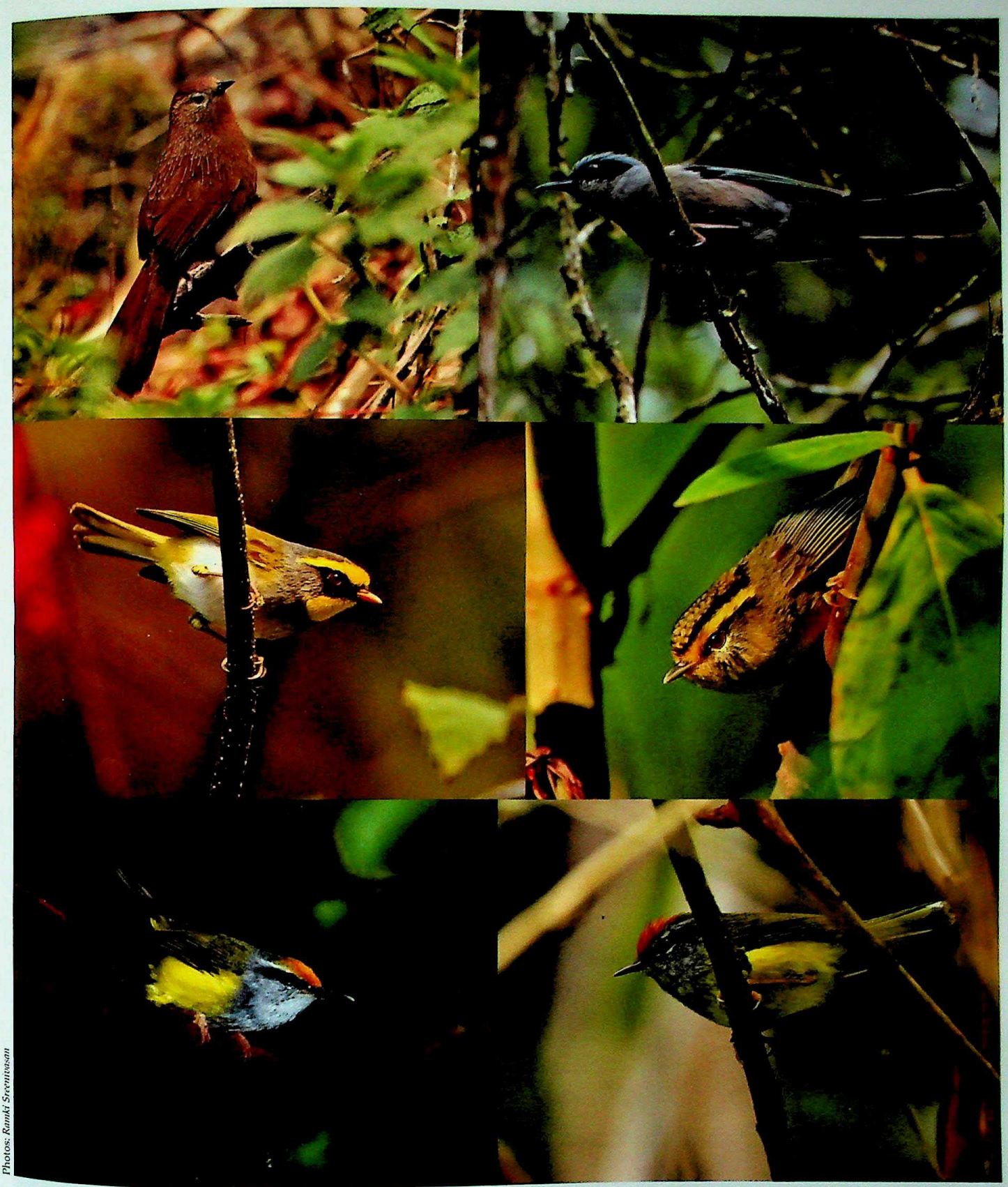

Photos: *Ramki Sreenivasan*

Top: L: The lack of rufous ear coverts separates the Bhutan Laughingthrush *Trochalopteron imbricatum* from the Streaked Laughingthrush *T. lineatum* found in the western Himalaya. It is best seen in Eaglenest, in the deep ravine next to Lama Camp, often in the company of the Eaglenest specialty—the Bugun Liocichla. **R:** The Beautiful Sibia *Heterophasia pulchella* is one of the commonest birds of Arunachal. Gregarious and omnipresent, it is best seen near Lama Camp in Eaglenest. **Middle: L:** One of the 'masked Zorros' of the NE Hills, the Black-faced Flycatcher-Warbler *Abroscopus schisticeps* closely resembles Yellow-bellied Fantail-Flycatcher *Rhipidura hypoxantha*. **R:** The Yellow-throated Fulvetta *Alcippe cinerea* is the commonest fulvetta in Eaglenest. One sees and hears these birds so much that their chirps keep resounding even in sleep! **Bottom: L:** The Mountain Tailorbird *Orthotomus cuculatus* is a striking bird similar to the Broad-billed Warbler, and has a glorious song. It is seen typically in the thick undergrowth of the NE rainforest. **R:** Very attractive, vocal, but seldom seen, the Broad-billed Flycatcher-Warbler *Tickellia hodgsoni* is found at mid-altitudes next to Bompu Camp in Eaglenest.

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Top: L: Brown-throated Fulvetta *Alcippe ludlowi*. Photographing smaller birds is one of the many thrills of the NE Hills. After a day or two in the NE one starts remembering the field guide plate numbers for fulvettas, wren-babblers, yuhinas, minlas, and shrike-babblers! **R:** A striking high-altitude bamboo specialist, the Brown Parrotbill *Paradoxornis unicolor* is invariably found near Eaglenest Pass (2,800 m). **Middle: L:** Very common in Eaglenest, these fire-breasted Flowerpeckers *Dicaeum ignipectus*, at 8 cm, are one of the smallest birds of the Indian Subcontinent. **R:** This beautiful Bar-throated Minla *Minla strigula* possibly had a nest nearby, given the food it was carrying, and its belligerent behaviour. **Bottom: L:** We spent two very cold and sleepy early mornings in Mayodia Pass (2,655 m) in the Mishmi Hills waiting for monals and tragopans. We drew a blank on them and the only consolation was a flock of these bold Yellow-billed Blue Magpies *Urocissa flavirostris* that surrounded our jeep. **R:** Collared Owlet *Glaucidium brodiei*—the smallest of our owl(et)s, these were earlier aptly named Pygmy Owlet. Constantly heard across the NE Hills, this most unfortunate bird is incessantly mobbed by birds of all types – from the forest floor to the canopy! Playing its call is one of the most effective ways to attract birds.

Photos: Ranki Sreenivasan

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Photos. *Ramki Sreenivasan*

Top: L: Rufous-winged Fulvetta *Alcippe castaneceps*. **R:** The Eastern Himalayan race of the Red-headed (Chestnut-crowned) Laughingthrush *Garrulax erythrocephalus*, like this Eaglenest pair, actually does not have a chestnut crown but a gray head, chestnut nape and silver cheeks. **Middle: L:** Earlier known as the Nepal or Himalayan Cutia, this male Cutia *Cutia nipalensis* is a striking Himalayan bird with striking sexual dimorphism. **R:** Female Cutia. **Bottom: L:** The jet-black male Gold-naped Black Finch *Pyrrhoplectes epauletta* is very striking with its gold-nape. Like most finches they are very shy and I was lucky to get this pair (with an 800 mm lens) completely engrossed in devouring these tiny fig-like fruit. **R:** The Green-backed Tit *Parus monticolus* is the commonest tit of the NE.

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Top: L: Easily the most striking of the fulvettas, which breaks their typically brown/grey uniform, this very agitated Golden-breasted Fulvetta *Alcippe chrysotis* was photographed in Mishmi Hills. **R:** The Gold-headed Babbler *Stachyris chrysaea* is a small (10 cm) and very striking babbler present in most mixed hunting flocks. **Middle: L:** Rufous-necked Scimitar Babblers *Pomatorhinus ruficollis* are very handsome birds and I found them far bolder in May than during my earlier winter visits to Eaglenest. **R:** A lucky image when this splendid male Grey-chinned Minivet *Pericrocotus solaris* landed in front of me as we were getting into the jeep and I still had my rig mounted. **Bottom: L:** The commonest sunbird in Eaglenest, the Green-tailed *Aethopyga nipalensis* is also the most inquisitive! This full-frame image was taken at minimum focus distance. **R:** The male Mrs Gould's Sunbird *Aethopyga gouldiae* is truly spectacular and is like a splash of color in the evergreen jungle. It is named after Elizabeth Gould (1804–1841)—wife of the legendary John Gould (1804–1881).

Photos: *Ramki Sreenivasan*

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Photos: Ramki Sreenivasan

Top: L: One of the most-seen warblers in Arunachal, the Grey-cheeked Flycatcher-Warbler *Seicercus poliogenys* has a distinctive call. **R:** Silver-eared Leiothrix *Leiothrix argentarius* is a very colorful bird and is very common in Arunachal where we found flocks both in Eaglenest and Mishmi Hills. **Middle: L:** The Alpine Accentor *Prunella collaris* is a resident of bare mountain areas with low vegetation. Here photographed in the Mayodia Pass (2655 m) area in Mishmi Hills. **R:** Parrotbills are NE specialties. This is my first clean image of the Greater Rufous-headed Parrotbill *Paradoxornis ruficeps* from Eaglenest. **Bottom: L:** The largest of wren-babblers, the Sikkim Wedge-billed Wren-Babbler *Sphenocichla humei*, a long time target of mine, has a history of taxonomic wrangling with the race *S. roberti* found below the Brahmaputra. Eaglenest is one of the best places in the world to see this amazingly rare bird. In May, this bird was at its vocal best—we recorded as many as 11 different vocalizations from this individual. This image was made at 1600 ISO—the undergrowth was pretty dense and almost pitch dark! **R:** This Red-faced Liocichla *Liocichla phoenicea* is infinitely more difficult to photograph than its more glamorous 'Bugun' cousin!

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Top: L: One of the commoner fulvettas of Mishmi Hills, the Manipur Fulvetta *Alcippe manipurensis* has a poorly defined range in the NE and the bird books omit their extension into Arunachal. **R:** A north-eastern India specialty, the Bay Woodpecker *Blythipicus pyrrhotis* sulks in thick tall bamboo—this one might be a juvenile female. **Middle: L:** I missed the beautiful Long-tailed Broadbill *Psarisomus dalhousiae* multiple times in Panbari, Kaziranga, and finally found plenty of them in the lower reaches of Eaglenest, especially near Sessni, and Ramaling camps. **R:** Sibias are bulbul-sized babblers. The Rufous-backed Sibia *Heterophasia annectans*, a specialty of Eaglenest, is the scarcest and smallest of sibias, and typically, a reliable indicator of the presence of a Beautiful Nuthatch *Sitta formosa*—another Eaglenest specialty! **Bottom:** The discovery of Hodgson's Frogmouth *Batrachostomus hodgsoni*, by Shashank Dalvi, catalyzed me to make another trek to Eaglenest in May 2009 just as the monsoon was breaking. We spent an entire day in pouring rain on a 60° slope in dense bamboo to take some images of this female. This discovery is exceedingly significant as this enigmatic bird has very few records in the Eastern Himalaya—mostly from eastern Bhutan and Namdhapa.

Photos: Ramki Sreenivasan

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Photos: Ramki Sreenivasan

Top: L: The Mountain Imperial-Pigeon *Ducula badia* is a common pigeon in the NE as it is across the hills of the Indian Subcontinent. The NE race is much paler than its peninsular cousins. **R:** The Rufous-capped Babbler *Stachyris ruficeps* is common in the NE Hills though it is heard more than seen. Belongs to the same tribe as the striking Golden and the near-identical Rufous-fronted. **Middle: L:** We found this amazing Slender-billed Scimitar Babbler *Xiphirhynchus superciliaris* near the Eaglenest pass (~2,800 m) and got a few frames after a long chase across the dwarf bamboo. **R:** The Orange-gorgeted Flycatcher *Ficedula strophiata* is the commonest flycatcher of the NE Hills though it took me years to get a clean shot! I got this bird while waiting in sub-zero temperatures for the mythical Sclater's Monal *Lophophorus sclateri* and Blyth's Tragopan *Tragopan blythii* at Mayodia Pass (2,655 m) in Mishmi Hills. **Bottom: L:** The Rufous-throated Wren-Babbler *Spelaeornis caudatus* is locally common, but difficult to see and circumvent like the rest of the family. **R:** The three barwings are quite common in the NE and form the fulcrum for most mixed hunting flocks. This Rusty-fronted Barwing *Actinodura egertoni* was about to cross the trail.

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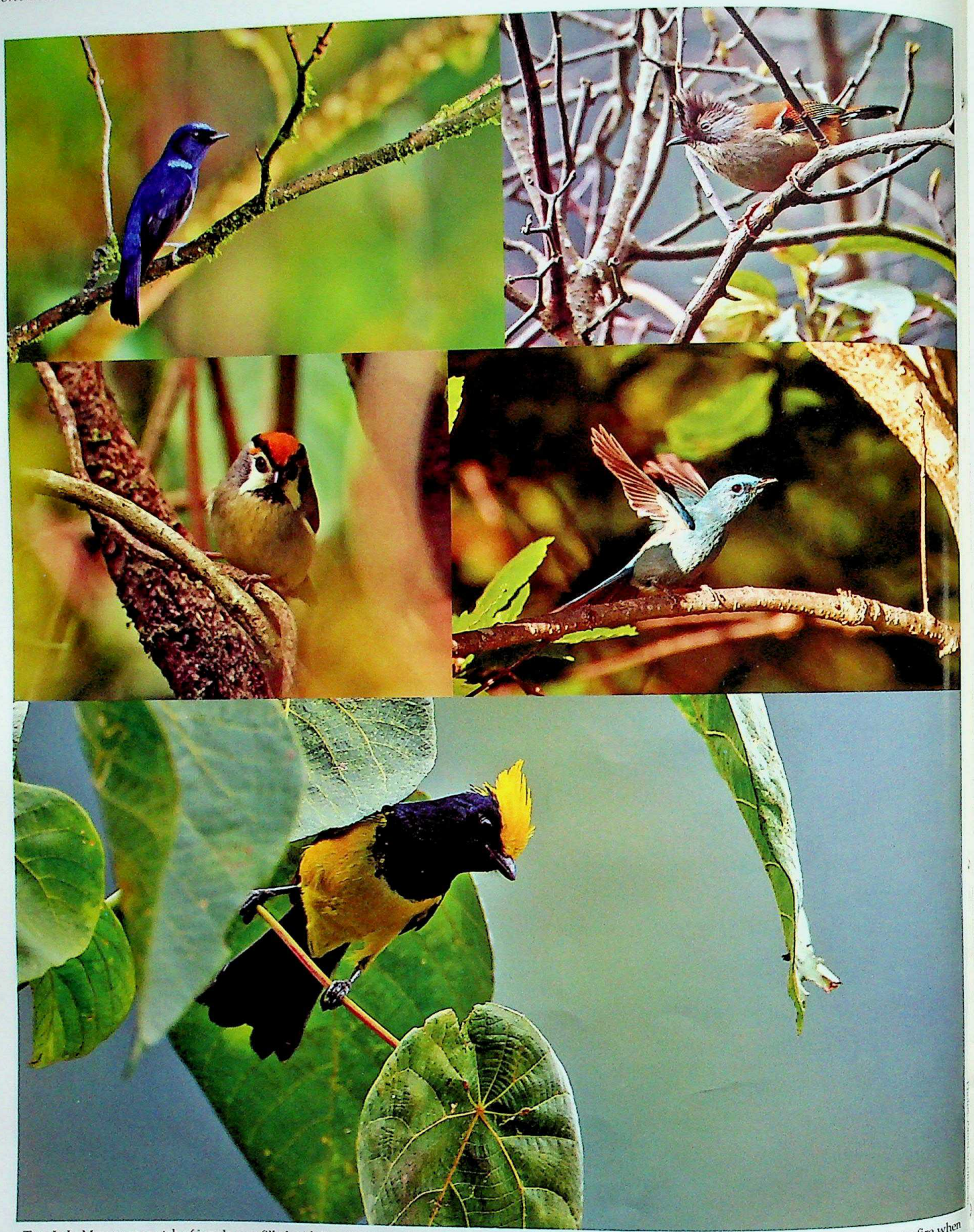

Top: L: In May, every patch of jungle was filled with Small Niltava *Niltava macgrigoriae* song though the birds seldom came out into the open. I was lucky to fire when this male popped into a shaft of the early morning sun. **R:** The Hoary-throated *Actinodura nipalensis* is the commonest Barwing, and like its siblings, curious, inquisitive and ever active. **Middle: L:** Black-throated Parrotbill *Paradoxornis nipalensis*, another of those diminutive north-eastern bullets (all of 10 cm) from the legendary Arunachal forests, which disappear before you can raise your camera. Impossible to photograph in winter, when they are part of hyperactive mixed flocks, they slow down a bit in summer as they leave mixed flocks to go solo. **R:** The Pale Blue-Flycatcher *Cyornis unicolor* was the last bird I shot in Eaglenest in May 2009. I was already late and had packed and unpacked my gear twice when Shashank called out for this from the bottom of a slope! **Bottom:** The Sultan Tit *Melanochlora sultanea* is a leading member of the famed mixed hunting flocks of Arunachal. Though not uncommon, it was a dream species for me, as I never managed to photograph it earlier.

Photos: *Ranjit Sreenivasan*

Photo: *Sachin Rai & Shashank Dalvi*

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Photos: *Banki Srinivasan*

Photo: *Sachin Rai & Shashank Dalvi*

Top: L: The unusual Striated Bulbul *Pycnonotus striatus*, though not uncommon, is always a delight to see. **R:** The NE is the best place in India to see the diminutive Stripe-throated Yuhina *Yuhina gularis* along with its myriad cousins. **Middle: L:** Yellow-naped Yuhina *Yuhina flavicollis*—one of the widely seen birds of the Eastern Himalayas. **R:** The Bar-winged Wren-Babbler *Spelaeornis troglodytoides* is one of the most striking wren-babblers—common but difficult to see, and is present at most altitudes at Eaglenest. **Bottom:** Gould's Shortwing *Brachypteryx stellata*.

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A bibliography of ornithology in Arunachal Pradesh, India: 1870–2009

Aasheesh Pittie

Pittie, A. 2009. A bibliography of ornithology in Arunachal Pradesh, India: –2009. *Indian Birds* 5 (3): 80–88.
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Introduction

This bibliography has been extracted from my larger database, "A bibliographic index to the birds of South Asia." It comprises papers, popular articles, books, chapters, published and un-published reports, trip reports, *etc.* It covers a period of one hundred and thirty-nine years, from 1870–2009. A bibliography of this nature cannot pretend to be complete and this is no exception. There are always publications beyond the reach of the bibliographer. A case in point being the various birding trip reports prepared by bird tour operators. However a majority of the published ornithological work on Arunachal Pradesh's ornithology is listed here. Accuracy in transcribing is a basic tenet of bibliography and though great care has been taken to ensure it, mistakes may have crept in and pertinent published material inadvertently left out. This is the more likely in that I have not seen all the entries listed below in the original, but have freely taken them secondhand from the 'References' or 'Further reading' sections of papers and books. I would be grateful if readers sent me citations of material that is missing here.

Authors have been arranged alphabetically and their work chronologically. Multi-author papers have been listed under the name of the senior author. Separate entries have not been inserted for co-authors. Where a title was not given in the original, a suitable descriptive substitute was coined, generally comprising a part of or the complete first sentence, and is placed within brackets.

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Errata

Indian Birds Volume 5 Number 1, 2009.

Page 1: Contents: ninth line from bottom, '*Cyronis*' should read '*Cyornis*'.

Page 22: Kumar & Kumar: first column, fifth line from bottom, '*P. fuscata*' should read '*P. fusca*'.

Page 26: In the title, '*Cyronis*' should read '*Cyornis*'.

Page 31: 2nd column, 12th line from top: 'Olka Bird Park' should read 'Okhla Bird Park'.

Sikkim Wedge-billed Wren-Babbler *Sphenocichla humei*

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Aims & Objectives

- To publish a newsletter that will provide a platform to birdwatchers for publishing notes and observations primarily on birds of South Asia.
- To promote awareness of birdwatching amongst the general public.
- To establish and maintain links/liaison with other associations or organized bodies in India or abroad whose objectives are in keeping with the objectives of the Trust (i.e. to support amateur birdwatchers with cash / kind for projects in ornithology).

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Front cover: Male Lesser Florican *Sypheotides indica* displaying.

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A conservation status survey of hornbills (Bucerotidae) in the Western Ghats, India

Divya Mudappa & T. R. Shankar Raman[1]

Mudappa, D., & Raman, T. R. S., 2009. A conservation status survey of hornbills (Bucerotidae) in the Western Ghats, India. *Indian Birds* 5 (4): 90–102.

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Abstract

The Western Ghats biodiversity hotspot in India is threatened by habitat loss and fragmentation, which is likely to impact large-bodied, wide-ranging species with specialised requirements such as hornbills. In this survey along the Western Ghats, we surveyed for four hornbill species that occur here: Malabar Pied Hornbill *Anthracoceros coronatus*, and Indian Grey Hornbill *Ocyceros birostris* (endemic to South Asia), Malabar Grey Hornbill *Ocyceros griseus* (endemic to the Western Ghats), and the Great Hornbill *Buceros bicornis*. We visited 45 localities across five states: Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. These included 26 wildlife sanctuaries, 5 national parks, 13 reserved forests, and one plantation landscape. Across sites, we walked 80 transect surveys totalling a length of 286.4 km. In all, 631 individual hornbills (412 detections) were recorded across 35 localities. The Malabar Grey Hornbill was most frequently detected, and widely-distributed, followed by the Great, and Malabar Pied hornbills. The Indian Grey Hornbill, more widespread across India, was seen in only two locations in this survey. Hornbill encounter was up to five times higher in moist, and wet forests as compared to dry forest types. Based on hornbill distribution and protected areas, five important hornbill conservation landscapes were identified in the Western Ghats (Amboli–Goa–Dandeli, Anamalai–Parambikulam–Vazhachal, Nilgiris–Wayanad, Someshwara–Sharavati–Mookambika, Neyyar–Peppara–KMTR, and Periyar) along with key reserved forests (Kottiyoor, New Amarambalam, Vazhachal, Nelliampathy, Goodarickal, Kulathupuzha–Palode). Hornbill densities were estimated in two of the above landscapes, and are provided as a baseline. We highlight some key considerations for hornbill research and conservation, and future needs.

Introduction

A large body of research has shown that the threats of habitat loss, and fragmentation severely impact large-bodied, wide-ranging species as well as species that have highly restricted geographic ranges or specialised requirements. Among birds, for instance, this makes wide-ranging species such as hornbills, and restricted-range species (endemics), more significant for conservation attention. The sensitivity of hornbills to hunting and habitat disturbance, and their specialised requirements for diverse old-growth forests for feeding and nesting have been amply demonstrated across Asia (see Poonswad & Kemp 1993; Kinnaird & O'Brien 2007—for recent syntheses), including India (Reddy 1988; Kannan 1994; Kannan & James 1997, 2006; Mudappa & Kannan 1997; Mudappa 2000; Datta 1998, 2001; Datta & Rawat 2003, 2004; Balasubramaniam *et al.* 2004). Even in the case of the more widespread Indian Grey Hornbill, a species of drier and more open habitats, sensitivity to habitat alteration leading to local extinctions have been reported in studies at the northern extremity of the Western Ghats—Purna/Ratanmahal, Gujarat (Trivedi & Soni 2006). In central Indian forests, their sensitivity to habitat disturbance due to logging has also been reported (Mehta 1998).

Of the 54 species of hornbills known from the world (Kemp 1993), nine occur within India, and four occur in the Western Ghats: the Malabar Pied Hornbill *Anthracoceros coronatus*, and Indian Grey Hornbill *Ocyceros birostris* (endemic to the Indian Subcontinent), Malabar Grey Hornbill *Ocyceros griseus* (endemic to the Western Ghats), and the endangered Great Hornbill *Buceros bicornis*. Apart from the two smaller *Ocyceros* spp., all other hornbill spp., are rare and threatened, and have been placed under Schedule I of the Indian Wildlife (Protection) Act, 1972[1]. Past research on hornbills in India has addressed many aspects of their biology such as breeding, nest selection, and diet (Reddy 1988; Kannan 1994; Kannan & James 1997, 2006; Mudappa & Kannan 1997; Mudappa 2000, 2005; Datta 2001; Datta & Rawat 2003, 2004; Balasubramanian *et al.* 2004). Less information is available on distribution and abundance patterns of hornbills particularly in the face of large scale landscape transformations and continuing fragmentation and disturbance (Datta 1998; O'Brien *et al.* 1998; Reddy *et al.* 1990; Raman & Mudappa 2003). A recent survey by Balasubramanian *et al.* (2004, 2007) recorded hornbill distribution in a number of sites in Kerala, Tamil Nadu, Karnataka, and Goa in the Western Ghats, as well as in parts of the Eastern Ghats. This survey found the Malabar Grey

1 All hornbills (Family: Bucerotidae) were earlier placed in Schedule I; however, the two smaller *Ocyceros* have been removed from the listing. In what is possibly an oversight, the Malabar Pied Hornbill *Anthracoceros coronatus* appears to have been omitted from the listing as currently (15 August 2008) evident on the website of the Ministry of Environment and Forests, Government of India (http://envfor.nic.in/legis/wildlife/wildlife1.html).

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Hornbill to be the most frequently observed species, and reported vegetation types in which each species occurred in the region.

The Western Ghats mountain chain, along the country's western coast, is recognised as one of the eight 'hottest hot spots' of biological diversity in the world (Myers *et al.* 2000; Mittermeier *et al.* 2004), and an ecologically important region within India. The Western Ghats have historically been heavily altered due to human impacts on natural landscapes through urbanisation, agriculture, plantations, hydro-electric projects, roads, and deforestation (Nair 1991; Menon & Bawa 1997; Williams 2003; Kumar *et al.* 2004). This is not surprising given that this region is one of the hotspots with the highest human population density (Cincotta *et al.* 2000). Jha *et al.* (2000) estimated that one-fourth (25.6%) of the Western Ghats's forest cover had been lost over a period of 22 years from 1973 to 1995, giving an annual deforestation rate of 1.16%.

The present survey targeted tropical forest areas restricted to elevations below 1,500 m along the Western Ghats from northern Maharashtra to Kerala. We aimed to: (1) assess distribution of hornbills using field surveys and secondary information, (2) identify important hornbill conservation units based on our survey, and (3) estimate population density of hornbills in some important conservation units to serve as a baseline. The survey covered 31 protected areas (wildlife sanctuaries and national parks) and 13 reserved forests along the Western Ghats. A larger goal was to identify key areas in the regional landscape, for conservation and management of these flagship species, and their habitats.

Study region

The Western Ghats is a 1,600 km long chain of hills running along the western coast of the Indian Peninsula, from near Kanyakumari at 8 N at the southern end, to the Tapti River in the north at 21 N (Fig. 1). The Western Ghats, distributed narrowly between 73 and 77 E, is less than 100 km wide over most of its length, being widest in the region of the Anamalai and Nilgiri ranges. Passing through the states of Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu, a number of hill ranges link up to form the Western Ghats. Going from north to south, these include the Sahyadri of Maharashtra and Goa, the hills of Uttara and Dakshina Kannada, Pushpagiri and Brahmagiri, and tall and imposing ranges of the Nilgiri (a meeting point with the Eastern Ghats), Anamalai, Palni, Cardamom (Elamalai), Varushanad, and Agasthyamalai hills (Nair 1991).

The Western Ghats has a tropical climate that shows pronounced variation along north–south, east–west, and altitudinal gradients. A comprehensive account of climate and vegetation in the Western Ghats is beyond the scope of this report, and is available in other publications (Champion & Seth 1968; Subramanyam & Nayar 1974; Puri *et al.* 1983; Pascal 1988). In general, the vegetation becomes drier as one progresses from west to east (rain shadow) across the hills. Lower elevations on the eastern aspect, receiving less than 1,200 mm annual rainfall, contain tropical dry deciduous and thorn forest, with tropical moist deciduous forests in more well-watered areas (Champion & Seth 1968). With increasing elevation, tropical wet evergreen rainforest appears along the higher slopes and ridges. The western aspect of the hills tends to have mostly tropical moist deciduous and wet evergreen forest types at lower elevations, giving way to the latter type as one climbs higher. The tropical wet evergreen forests of the Western Ghats, which are a main focus of this survey, have been classified by Pascal (1988) into low- (mostly below < 700 m), medium- (700–1,400 m), and high-elevation (>1,400 m) types.

Photo: Kalyan Varma

Malabar Pied Hornbill pair.

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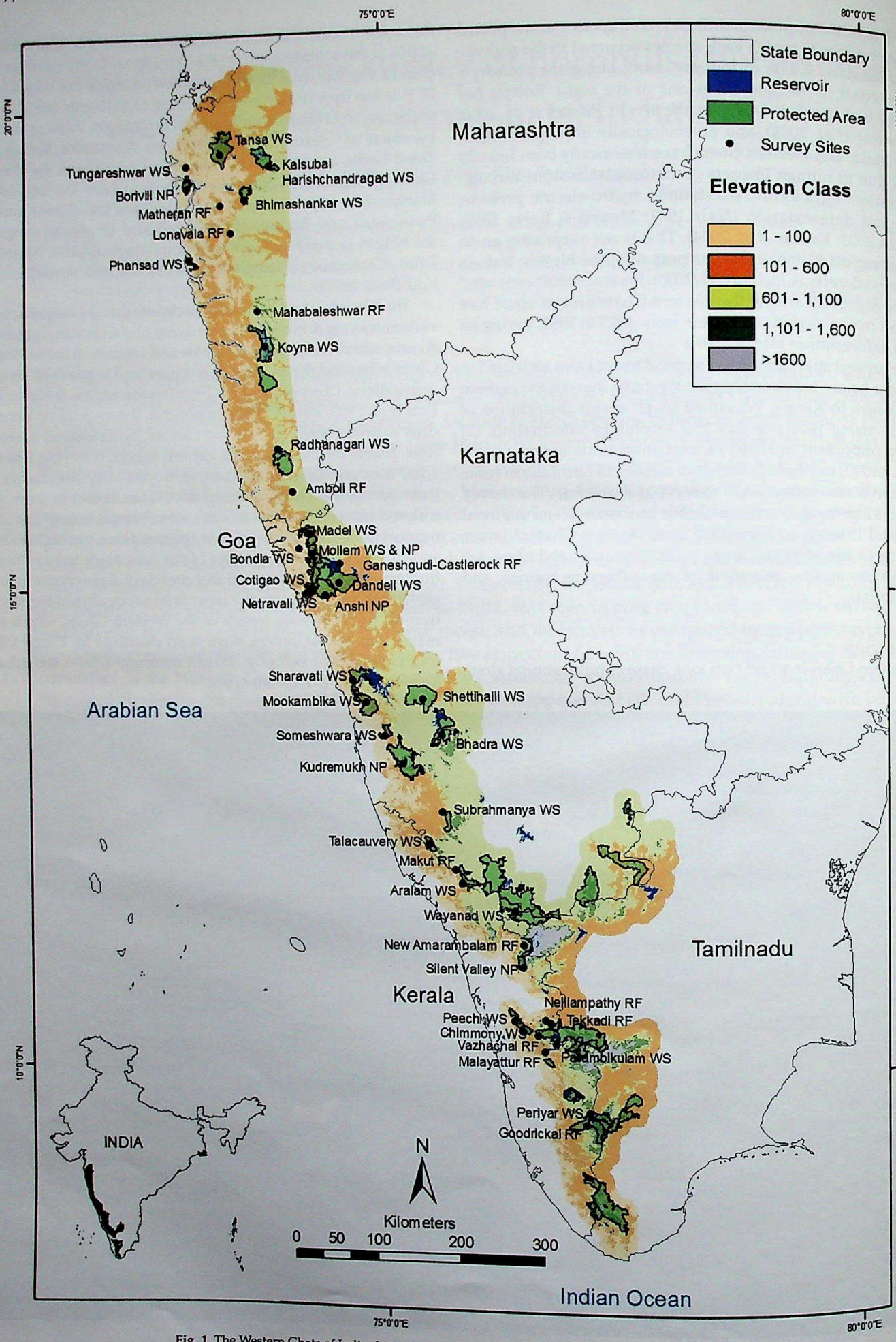

Fig. 1. The Western Ghats of India showing protected areas and reserved forests and surveyed sites.

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Table 1. Localities visited and effort in sites where transect survey was carried out.

State	Site	Transects	Duration (min)	Length (km)
Maharashtra	Amboli RF	—		
	Bhimashankar WS	2	223	4.31
	Borivili NP	1	60	2.04
	Kalsubai–Harishchandragad WS	1	45	1.04
	Koyna WS	4	383	8.65
	Lonavla RF	—		
	Mahabaleswar RF	1	85	1.56
	Matheran RF	1	84	2.20
	Phansad WS	1	115	3.01
	Radhanagari WS	2	315	24.62
	Tansa WS	1	68	1.41
	Tungareshwar WS	1	70	1.68
	TOTAL	15	1448	50.51
Goa	Bondla WS	3	204	5.75
	Cotigao WS	3	198	5.56
	Madei WS	3	263	5.31
	Mollem WS & NP	6	699	18.07
	Netravali WS	1	56	1.12
	TOTAL	16	1420	35.81
Karnataka	Anshi NP	2	123	4.15
	Bhadra WS	1	60	1.44
	Dandeli WS	3	295	7.96
	Ganeshgudi–Castle Rock RF	—	+	—
	Kudremukh NP	1	60	1.34
	Makut RF	—	+	—
	Mookambika WS	1	69	1.41
	Sharavati WS	1	51	1.47
	Shettihalli WS	1	60	1.34
	Someshwara WS	1	60	1.59
	Subrahmanya WS	1	64	2.10
	Talacauvery WS	1	60	1.61
	TOTAL	13	902	24.41
Kerala	Aralam WS	1	60	1.34
	Chimmony WS	1	60	1.34
	Goodrickal RF	1	65	1.22
	Malayattur RF	1	61	1.47
	Nadugani RF	—	+	—
	Nelliampathy RF	2	120	2.35
	New Amarambalam RF	—	+	—
	Parambikulam WS	1	61	1.21
	Peechi WS	1	59	1.04
	Periyar WS	2	120	2.68
	Silent Valley NP	1	60	1.94
	Tekkadi RF	—	+	—
	Vazhachal RF	5	405	8.97
	Wayanad WS	1	60	1.41
	TOTAL	17	1131	24.96
Tamil Nadu	Indira Gandhi WS* survey	4	344	6.93
	Indira Gandhi WS* transects	11	c. 6000	117.5
	Valparai fragments transects	4	c. 1800	33.2
	TOTAL	15	c. 7800	157.63

WS—Wildlife Sanctuary, NP—National Park, TR—Tiger Reserve, RF—Reserved Forest, +—visited briefly, *—now known as Anamalai Tiger Reserve.

Materials and Methods

Survey localities and effort

We visited 45 localities across five states along the Western Ghats: Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. These included 26 wildlife sanctuaries, five national parks, 13 reserved forests, and one plantation landscape. Logistics restricted the amount of time spent in each area; although we passed through a number of other sites, it was not possible to gather first-hand information due to various limitations.

We covered 135.69 km in 65 line transect surveys in various sites across Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu (Table 1; locations in Appendix). In addition, 15 line transects in Tamil Nadu were repeatedly surveyed five times each (for a total distance of 150.7 km). Besides the approximately 211 hours spent on transect surveys, we spent substantially more time (around 80 field-days) in various sites excluding Tamil Nadu.

To examine broad habitat affiliations, we also categorised the transects into four major habitat types: dry forests (dry thorn and deciduous forests), moist forests (moist deciduous and semi-evergreen forests), wet forests (primarily tropical wet evergreen forest), and Sahyadri or northern wet forests (evergreen forests typical of the northern Sahyadri portion). The survey effort was distributed across major vegetation types as follows: dry forests—12 transects, 24.52 km; moist forests—17 transects, 30.6 km; wet forests—32 transects, 79.4 km; and, hilltop evergreen forests—4 transects, 8.07 km.

Identifying key sites for hornbill conservation

The information on number of hornbill species and their abundance (encounter rates, density) within sites was examined with other landscape and habitat characteristics that are likely to be relevant for the conservation of these large and wide-ranging birds. We shortlisted landscapes with contiguous protected areas of at least 500 km , giving higher priority to larger areas and those adjoining suitable buffer habitats (reserved forests, plantations with shade tree cover). We also examined habitat status ratings based on a number of criteria assessing the type and intensity of threats that were used in a related conservation assessment

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across the Western Ghats (CEPF 2007). Using a semi-quantitative approach that combined these rankings, we arrived at a list of potentially important sites for hornbill conservation.

Population density estimation

Besides occurrence, and encounter rates of species, population estimation from line transect surveys is an important aspect in identifying key areas for conservation of hornbills, especially for the larger, threatened species. Among the identified areas, given constraints of survey effort and logistics, we were able to carry out line transect density estimation across two landscapes: Dandeli–Goa, and Anamalai–Parambikulam.

From hornbill detections obtained during the line transect surveys we estimated population densities using distance sampling techniques as implemented in the DISTANCE computer program (version 5.0, Buckland *et al.* 2003; Thomas *et al.* 2005). All hornbills detected by sight, or call, in the field were categorised into the following perpendicular distance (from the transect line) intervals in metres: 0–5, 5–10, 10–20, 20–30, 30–50, 50–75, 75–100, >100, with a maximum detection distance (truncation point) of 150 m. Distances were estimated visually to most sightings or calls, by pace-length in a few cases, or measured with a rangefinder whenever possible. We took each detection (=cluster) to represent an individual, pair, or flock found in relatively close proximity and apparently moving or foraging together, and estimated flock or cluster density. Since flocks could not be counted in many cases for visual detections (and all aural detections), we used estimated average flock (cluster) size and its SE from data within and outside transects where complete counts of individuals were obtained. We multiplied the average flock size (F) by the average cluster density (C) to obtain individual hornbill density (D). Standard error of individual density (seD) was calculated using standard error of cluster density (seC) and standard error of average cluster size (seF) using Goodman's (1960) formula: $(seD) = C\,(seF) + F\,(seC) - (seC)\,(seF)$. We evaluated different models of detection probability (half-normal, uniform, and hazard-rate) with cosine adjustment terms and used standard model selection procedures in DISTANCE to select the best model for estimating density.

Results & discussion

In all, 631 individual hornbills (412 detections) were recorded in 35 localities across the entire Western Ghats during this survey. The Malabar Grey Hornbill was the most frequently observed, and widely-distributed species (342 individuals, 33 localities), followed by the Great Hornbill (146 individuals, 13 localities), and the Malabar Pied Hornbill (131 individuals, 10 localities). The Indian Grey Hornbill, more common and widespread across the Indian peninsula, was seen at only 2 locations (12 individuals) along the Western Ghats, in this survey.

State-wise summaries

Maharashtra

All four hornbill species were recorded in Maharashtra (33 detections comprising 45 individuals). Malabar Grey Hornbills (14 detections, 15 individuals) were seen in Amboli, Phansad, and Radhanagari, Great Hornbills (nine detections, 18 individuals) in Amboli, Radhanagari, and Mahabaleshwar (latter seen by Tanya Balcar and Bob Stewart—*verbally*), whereas Malabar Pied Hornbills (four detections, five individuals) were recorded only in Amboli and Phansad during the survey. The Indian Grey Hornbill (six detections, seven individuals) was recorded only from Borivili.

Goa

During the survey across five protected areas in Goa, and nearby areas, we recorded only two hornbill species: Malabar Grey Hornbill (59 detections, 75 individuals), and Malabar Pied Hornbill (18 detections, 25 individuals). The Malabar Grey Hornbill was seen in all five sites, whereas the Malabar Pied Hornbill was recorded in Mollem, Madei, and Cotigao. Local reports indicate that it also, occasionally, occurs in Bondla, and Netravali.

Karnataka

All four hornbill species were recorded during the survey across 13 sites in Karnataka (193 individuals, 103 detections). The Indian Grey Hornbill was detected thrice in Dandeli Wildlife Sanctuary (five individuals). The Malabar Grey Hornbill was most widespread, being detected 77 times (85 individuals) across all sites. The Malabar Pied Hornbill was detected 17 times across four sites: Dandeli, Ganeshgudi–Castlerock, Bhadra, and Mookambika, and we counted 96 individuals including those at roost sites. We had only six detections (seven individuals) of Great Hornbill, three each from Dandeli and Mookambika.

Kerala

Three hornbill spp., Malabar Grey, Malabar Pied, and Great hornbills, were recorded across 14 sites in Kerala (151 detections, 212 individuals). The Malabar Grey Hornbill was detected 118 times (158 individuals) across all sites except Peechi, Silent Valley, and Wayanad (where it almost certainly was overlooked due to short survey period). We obtained only four detections (five individuals) of Malabar Pied Hornbill, all from the Vazhachal-Athirampilly area. Great Hornbills were detected 29 times (49 individuals), from Chimmony, Goodrickal, Nelliampathy, Parambikulam, Periyar, Thekkadi, and Vazhachal. The Indian Grey Hornbill was not recorded, although there were reports of its occurrence near the Trichur and Chalakudi foothills.

Tamil Nadu

In Tamil Nadu, our focus was on estimation of hornbill population density in and around the Anamalai Tiger Reserve (formerly Indira Gandhi Wildlife Sanctuary). During the survey, detections on transects and other supplementary observation resulted in around 500 detections of Malabar Grey Hornbill and over 100 detections of Great Hornbills numbering over 750 and 250 individuals,

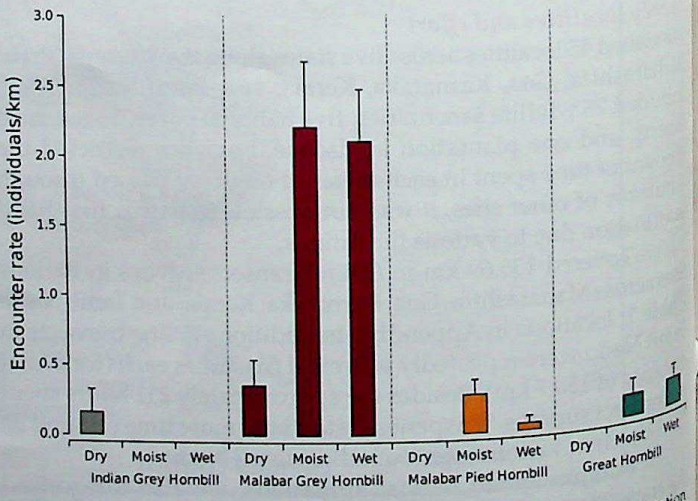

Fig. 2. Encounter rates of hornbill species in three broadly categorised vegetation types in the Western Ghats (vertical bars represent standard errors).

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respectively (exact numbers are not provided as many are counts over repeatedly surveyed transects or locations).

Species-wise summaries

Great Hornbill

This species was recorded in 13 of the 45 survey sites, chiefly in or in close proximity to wet evergreen forests at elevations from 50 m to 1500 m asl. The records range from southern Maharashtra (Radhanagari and Amboli) to the southern-most sites in the Western Ghats. Relatively higher numbers were encountered in Radhanagari, Anamalai hills (Anamalai, and Parambikulam Tiger Reserves and, Vazhachal Reserved Forests), and Periyar during the survey.

Malabar Pied Hornbill

Recorded in ten localities of the 45, the Malabar Pied Hornbill was relatively more frequently encountered in moist deciduous and riverine areas on the western aspect of the Ghats. All detections were at elevations <600 m, with most being at elevations between 100 and 450 m. The main stronghold of this species appears to be in the central portion of the Western Ghats (Goa–Dandeli to Sharavati–Mookambika), with scattered populations or more sporadic occurrence further north (Amboli, Phansad) and in the southern Western Ghats (e.g., Athirapilly–Vazhachal).

Malabar Grey Hornbill

This endemic species is clearly the most widely distributed (recorded in 33 of 45 localities) and relatively common hornbill in the Western Ghats, distributed over a range of forest types from moist deciduous, riverine, and semi-evergreen forests to tropical wet evergreen forests. Our records of this species extend from around 50 m elevation to 1500 m elevation, from Phansad in Maharashtra to the southernmost sites in the Western Ghats.

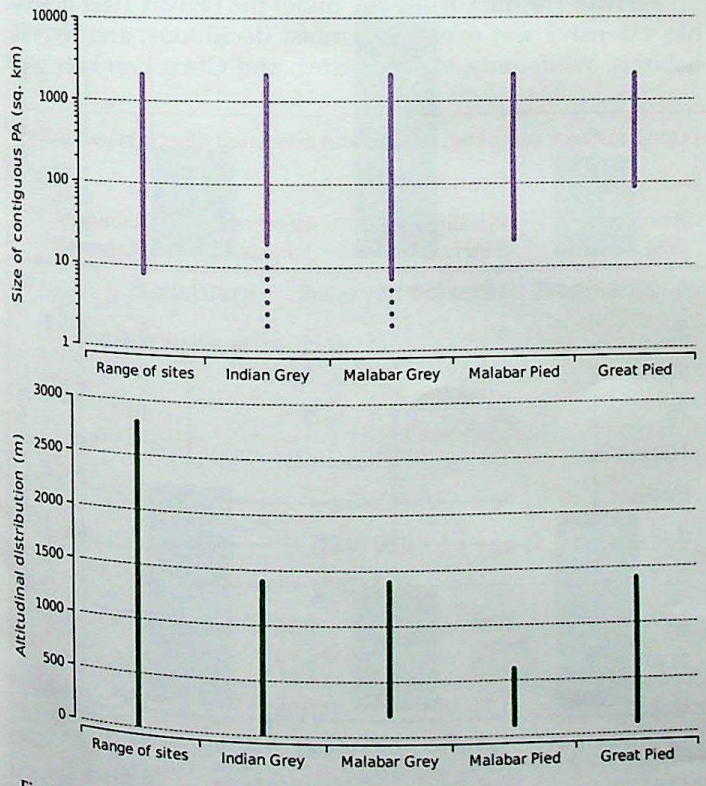

Fig. 3. Distribution of range of sites surveyed and individual hornbill species in relation to size of contiguous protected area and altitude. Broken lines indicate records from outside the survey.

Indian Grey Hornbill

This species, more typical and widely distributed across the plateaux and plains of India, than in the Western Ghats, was noted only in a few peripheral localities, or the foothills, during this survey. This included direct records only from Borivili and Dandeli, besides received reports of its occurrence around Trichur and Chalakudi in Kerala, and an earlier record from Panchgani, Maharashtra (Gole 1998). Despite the few records obtained in this survey, we would like to observe that this species is clearly still relatively common and widely distributed across India, even in urban centres (e.g., New Delhi, Nagpur, and Mysore, to name a few). However, being a species endemic to South Asia and one of the large-bodied species, it merits continuing conservation attention (R. Sankaran, *verbally*). Even during this survey, we obtained reports of hunting, and poaching, of nests of hornbills in the Western Ghats.

Habitat affiliations of hornbills

Hornbill encounter rates were calculated from transect data in vegetation types broadly categorised as dry forests (tropical dry thorn and dry deciduous), moist forests (chiefly tropical moist deciduous and riverine), and wet forests (tropical semi-evergreen and wet evergreen). No hornbills were detected in the four sites in the northern wet evergreen forests of Maharashtra and hence these sites were excluded from analysis. The overall encounter rate of hornbills varied significantly by habitat type (Kruskal-Wallis ANOVA $\chi = 12.4$, $df = 2$, $P = 0.002$). The encounter rate was around five times higher in moist forests (mean = 2.65 hornbills/km, ± 0.51 SE), and wet forests (2.36 ±0.38), as compared to dry forests (0.52 ±0.22). The encounter rates of the four hornbill species in these three broad vegetation types indicates their main habitat affinities (Fig. 2). It is clear that the Indian Grey Hornbill is restricted to dry forests, although variation in encounter rates were not statistically significant due to the few locations in which the species was seen on transects (Kruskal-Wallis $\chi = 4.1$, $df = 2$, $P = 0.13$). The Malabar Grey Hornbill is more widely distributed, and showed significant differences in encounter among habitat types ($\chi = 13.2$, $df = 2$, $P = 0.001$), occurring chiefly in moist forest types and some dry deciduous areas adjoining moist forest tracts. The two larger hornbills are restricted to moist/wet forests. The Malabar Pied was more frequent in moist deciduous and riverine areas ($\chi = 10.2$, $df = 2$, $P = 0.006$). The Great Hornbill was a species largely of wet evergreen zone, spilling over into some adjoining moist forest types, but statistical significance could not be established due to its rarity and low detections on transects ($\chi = 2.0$, $df = 2$, $P = 0.37$).

Identifying important hornbill conservation landscapes

Compiling the occurrence data from our survey and the work of Balasubramanian *et al.* (2004, 2007) presents a picture of hornbill occurrence in relation to altitude and area of contiguous habitat within protected areas (PA) where the hornbill species occurred (Fig. 3). As seen from Fig. 3, the two smaller *Ocyceros* hornbills are seen across a wider range of sites in terms of contiguous PAs and altitudes than the larger species. In particular, the Malabar Pied Hornbill appears to have the narrowest altitudinal distribution in the Western Ghats coupled with an occurrence primarily in PAs at least larger than 20 km . It must be noted, however, that this analysis excludes areas of forest that may adjoin PAs and currently lack the same level of protection (e.g., reserved forests, plantations). The effective area of contiguous forest that determines the occurrence of these hornbill species (especially the larger species) is thus likely to be higher than illustrated here.

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Based on the occurrence of the four hornbill species, encounter rates/densities from the sites for which these indices of abundance are available, and the configuration and size of contiguous protected areas along the Western Ghats, a priority list of conservation units are identified. The main sites and some key aspects regarding each are listed below (in rough order of priority):

Amboli–Goa–Dandeli: This is a key region being perhaps the most important region for the conservation of the Malabar Pied Hornbill as evidenced from the preponderance of the records of this species being from this region and the relatively high encounter rates and density. Besides three crucial wildlife sanctuaries (Mollem, Madei, and Dandeli), a significant proportion of the population is found outside designated protected areas in reserved forests such as at Amboli, Ganeshgudi, Dandeli, and around Mollem–Madei. All four species of hornbills are found in the Amboli–Goa–Dandeli region. A detailed survey of the reserved forests and their fragmentation and conservation status is required for Amboli and around Dandeli, for consideration of possible inclusion with protected areas.

Anamalai–Parambikulam–Vazhachal: Again, a region with all four species of hornbills, this area appears significant particularly in terms of conservation of the Great Hornbill. Population densities estimated in and around Anamalai Tiger Reserve provide a baseline for this, and the Malabar Grey Hornbill (see next section). While the large area of forest and abundance of these two species indicate that their populations here are relatively secure, there is concern over the status of the Malabar Pied Hornbill that is threatened by the proposed Athirapilly dam, and lack of protected area status for reserved forests where it occurs (e.g., Vazhachal, Nelliampathy).

Nilgiris–Wayanad: This is one of the important conservation areas of the Western Ghats although fragmented due to dams, roads, agriculture, and timber and monoculture plantations. It gains importance due to the large areas of dry and wet forests, and the occurrence of all four species of hornbills. Quantitative estimates of hornbill encounter/abundance are, however, lacking. The patchy occurrence of Malabar Pied Hornbills on the eastern (Coimbatore forest division) and western/northern (Wayanad–Bandipur) parts requires better documentation. The region adjoins the Mysore Plateau to the north, which appears to be an area where Indian Grey Hornbills are still relatively frequently seen.

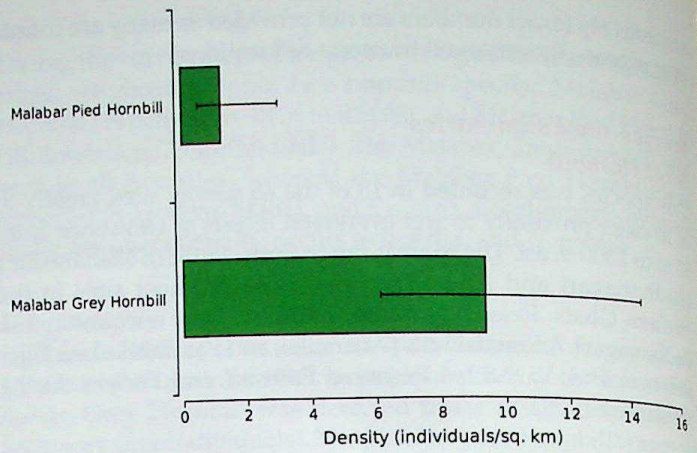

Fig. 4. Density of two hornbill species in the Dandeli-Goa region (error bars are 95% confidence intervals).

Someshwara–Sharavati–Mookambika: In Karnataka, this area appears to be an important complex for conservation of hornbills, including the Malabar Pied Hornbill, after the Anshi–Dandeli region. Only limited time could be devoted to this region during the present survey. However, earlier reports (Balasubramanian 2004) and sight records of flocks (up to 32, H. N. Kumara & Sushma Rao, *in litt.*) indicate its potential.

Neyyar–Peppara–Kalakad–Mundanthurai Tiger Reserve: A large, contiguous tract of over 400 km of tropical wet evergreen forest across the two wildlife sanctuaries in Kerala and the Kalakad-Mundanthurai Tiger Reserve make this an important conservation area. Malabar Grey, and Great hornbills are widespread in the evergreen forests, and Balasubramanian (2004) has recorded Malabar Pied Hornbill at Neyyar Wildlife Sanctuary and Tenmala reserved forests. We did not survey these areas.

Periyar: The tract of 777 km under the Periyar Tiger Reserve has extensive wet evergreen, moist deciduous, and riverine habitats. While only Malabar Grey, and Great hornbills were

Table 2. Density estimation of hornbills in Anamalai-Parambikulam region using distance sampling: models and estimated detection parameters

Detail	Malabar Grey Hornbill			Great Hornbill		
	Wildlife Sanctuaries	Reserved Forests	Rainforest Fragments	Wildlife Sanctuaries	Reserved Forests	Rainforest Fragments
Number of transects	16*	8	4	16*	8	4
Number of repeats	5*	1	5	5*	1	5
Total line length, km	125.68	12.78	33.18	125.68	12.78	33.18
Number of clusters†	346	40	76	57	2	10
Model	Hazard-rate	Half-normal	Hazard-rate	----------Half-normal----------		
Adjustment	Cosine	Polynomial	Cosine	----------Cosine----------		
Detection probability (SE)	0.51 (0.02)	0.25 (0.03)	0.47 (0.03)	----------0.80 (0.14) ----------		
Effective strip width, m (SE)	77.0 (3.0)	37.1 (4.5)	70.3 (5.3)	----------80.2 (13.8) ----------		
Encounter rate, detections/km	2.75	3.13	2.29	0.28	0.16	0.24
Encounter rate %CV	5.38	15.81	11.47	16.9	70.7	35.4
Density of clusters, number/km	17.9	42.2	16.3	1.74	0.98	1.50
%CV of cluster density	6.67	19.90	13.70	24.10	72.77	39.31
95% CI of cluster density	15.7 – 20.4	28.3 – 62.87	12.4 – 21.4	1.08 – 2.80	0.26 – 3.63	0.70 – 3.23

* One transect in Parambikulam Wildlife Sanctuary was surveyed only once.
† 'Clusters' in distance sampling terminology are detections, i.e. one or more birds detected together.

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recorded here during the present survey, the Malabar Pied Hornbill has been recorded here in other surveys (Periyar Foundation, http://www.periyarfoundation.org/pdf/birds.pdf, accessed 16 April 2009).

Crucial reserved forests: Some key reserved forest (RF) areas in the southern region, especially those adjoining protected areas, appear important for hornbill conservation:

Kottiyoor RF (adjoining Aralam/Brahmagiri Wildlife Sanctuary).

New Amarambalam RF (adjoining Silent Valley National Park).

Vazhachal and Nelliampathy RFs (adjoining Anamalai–Parambikulam).

Goodarickal RF (adjoining Periyar Tiger Reserve).

Kulathupuzha-Palode RFs (adjoining Peppara–Kalakad–Mundanthurai Tiger Reserve).

Population density estimation in two important hornbill conservation landscapes

Dandeli—Goa

All four hornbill species occurred in the Dandeli–Goa landscape. While the Indian Grey Hornbill was only seen near Dandeli town, the other three species were seen in both Goa and Karnataka. The wider survey also revealed the importance of this landscape for the Malabar Pied Hornbill. Two-thirds of the 131 Malabar Pied Hornbills recorded during the entire survey were seen across the Dandeli– Goa landscape in Karnataka, Goa, and adjoining areas of Maharashtra (Amboli). Dandeli was particularly important as

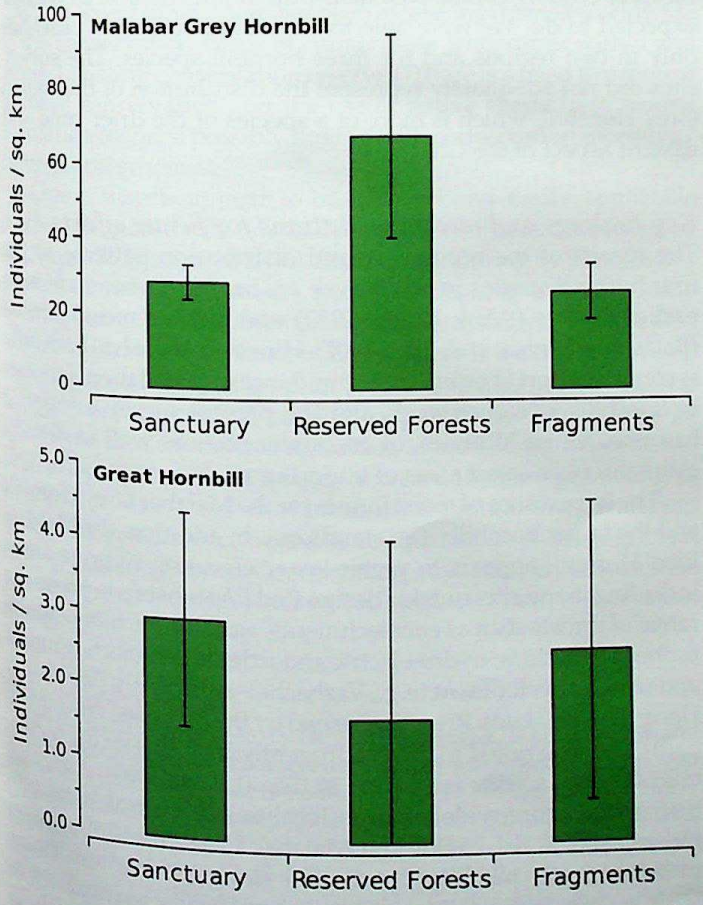

Fig. 5. Hornbill densities in Wildlife Sanctuaries (Indira Gandhi and Parambikulam), Reserved Forests, and rainforest fragments in the Anamalai Hills and Valparai plateau. Vertical bars are 95% confidence intervals.

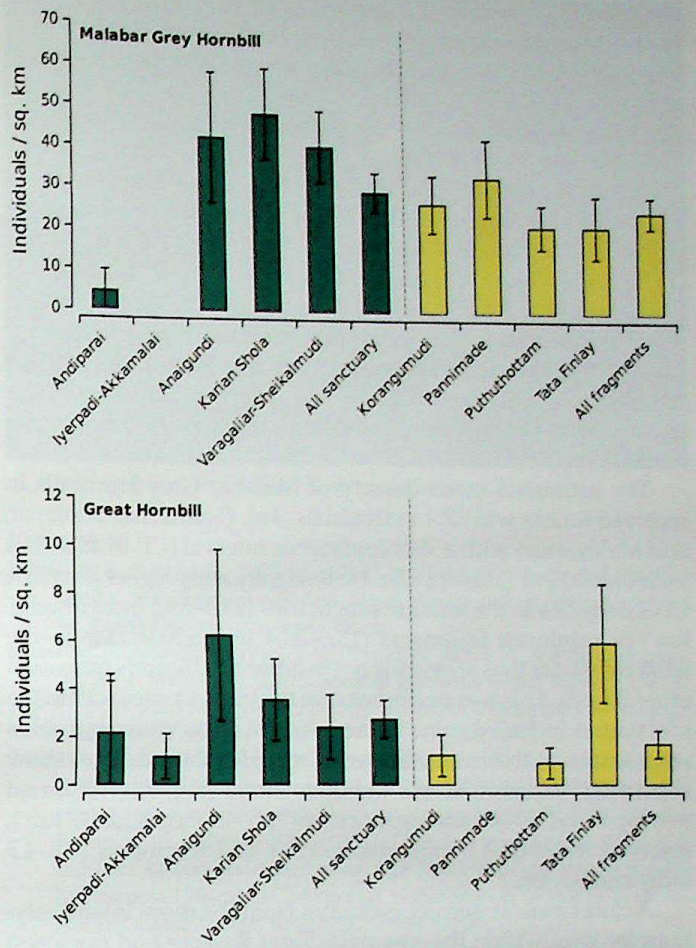

Fig. 6. Hornbill densities across sites within the Indira Gandhi Wildlife Sanctuary and rainforest fragments in the Valparai plateau. Vertical bars represent 95% confidence intervals.

large numbers (*c.* 80 birds) were seen using the forests in the area, and roosting in large flocks of up to 30 individuals along the Kali River in Dandeli, and Ganeshgudi. Transect data also revealed that the highest encounter rates of this species were in Mollem National Park and Wildlife Sanctuary (range = 0.13/km to 1.61/km across six transects), with high encounter rates in Madei Widlife Sanctuary, Goa (0/km to 0.84/km across three transects), and Dandeli Wildlife Sanctuary, Karnataka (0/km to 0.6/km across three transects).

We were able to obtain initial density estimates of Malabar Grey and Malabar Pied Hornbills from the transect data in this region (Fig. 4). We obtained 56 detections of Malabar Grey Hornbills and estimated a density of 9.4 individuals per km (95% confidence interval: 6.1–14.4 individuals/km). We obtained 11 detections of Malabar Pied Hornbills and estimated a density of 1.3 individuals per km (95% CI: 0.5–3.0 individuals/km). It would be worthwhile establishing a system of transects for monitoring.

A large number of Malabar Pied Hornbills were also seen outside the existing protected areas in reserved forests and some disturbed areas around Dandeli. There appear to be a number of roost sites along the Kali River in Dandeli and Ganeshgudi (and possibly in other areas). During three evenings at different roosts, we counted 30 individuals at one roost site (Kali main bridge, 14 October 2005), 21 at another (Kali old bridge, 17 October 2005), and 24 in Ganeshgudi. More recently, an intensive study on the Malabar Pied Hornbill has been completed from this area (Vijayakumar 2007).

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Anamalai—Parambikulam

In the Anamalai–Parambikulam region, hornbill densities were estimated from line transects distributed across three broad strata:

a. Wildlife sanctuaries: Anamalai and Parambikulam Tiger Reserves.
b. Reserved forests: Vazhachal–Sholayar and Malayattur.
c. Rainforest fragments: four forest fragments on private lands in the Valparai plateau.

The 171.64 km of transect survey yielded 462 detections of Malabar Grey Hornbill and 69 detections of the Great Hornbill overall. Detection functions were estimated strata-wise for the Malabar Grey Hornbill; however, due to fewer detections of Great Hornbill, we used a global detection function across strata for estimation of this species. Details of sampling and parameters are provided in Table 2.

The estimated mean density of Malabar Grey Hornbills in reserved forests was 67.4 individuals/km (Vazhachal–Sholayar, and Malayattur) with a 95% confidence interval (CI) of 40.4–94.4 individuals/km . This appeared to be significantly higher than 95% CI of densities in the wildlife sanctuaries (23.9–33.1 individuals/km) or rainforest fragments (18.6–33.4 individuals/km)—the latter two strata thus appearing not to differ significantly from each other (Fig. 5). This was partly because the transect sites within the sanctuaries included some higher altitude areas where hornbills were scarce or absent (see below). Great Hornbills did not show substantial variation across the three strata (Fig. 5) with broad overlap in the 95% CI among sanctuary (1.5–4.4 individuals/ km), reserved forest (0–4.0 individuals/km), and fragments (0.6–4.5 individuals/ km).

A closer look at density estimates from the more intensively-sampled sites within the Anamalai Tiger Reserve and rainforest fragments on the Valparai Plateau indicated patterns of variation within strata (Fig. 6). Within the sanctuary, the mean density of Malabar Grey Hornbill was higher in three sites at middle elevations (700–1,000 m): Anaigundi Shola (42.7 individuals/km), Karian Shola (48.7 individuals/km), and Varagaliar–Manamboli–Sheikalmudi complex (40.8 individuals/km). Malabar Grey Hornbills were scarce or absent (<3 individuals/km) at the two other sites at higher elevations (>1,300 m, Fig. 6). The Malabar Grey Hornbill densities were broadly similar across the Valparai Plateau fragments (21.5–33.5 individuals/km). Although the average densities in fragment sites tended to be lower than in the mid-elevation sites within the sanctuary, the 95% CI showed overlap in most cases (Fig. 6). The pattern of Great Hornbill density across sites was similar to that of Malabar Grey Hornbill; the low density and large 95% CI in fragments was possibly due to lower or partial use of fragments by these birds during their wide-ranging movements.

An important location for Great Hornbills is a roost site in the Valparai Plateau, adjoining forests of the Manamboli range of Anamalai Tiger Reserve, in the Anali estate (Tata Coffee Ltd) and Senthil estate (private ownership). While Anali estate is predominantly under shade-coffee and *Eucalyptus* fuel plantations, Senthil estate has seen recent conversion from rubber and coffee to tea plantations, the latter characterised by little shade. Up to 60 Great Hornbills have been observed to use this roost site every year during the non-breeding season. As the site partly overlaps private tea and coffee estates, it requires the involvement of these private landowners in the protection of roosting trees, reduction of disturbances, and conservation of this important roost site.

Shortcomings of survey

The survey period had to be extended due to various difficulties of logistics including delayed permits, travel, and unpredictable weather patterns. A few of the sites could not be surveyed due to these constraints and as we ran short of time and funds. The survey was too rapid to give a suitable understanding of the current trends in distribution within each of the sites or of seasonal variation and patterns within sites. Among states, Tamil Nadu was poorly covered and requires more field survey in the future. Although some local knowledge is available, of the distribution of many species, the lack of published information and the preponderance of grey literature made it difficult, in many cases, to reliably collate past distribution information as we had expected to do. We were able to establish population baselines only in two regions and for three hornbill species. The survey sites did not adequately represent the distribution of the Indian Grey Hornbill, which is more of a species of the drier zone and eastern aspect of the Ghats.

Key findings and recommendations for future efforts

The results of the occurrence and distribution patterns of the four hornbill species in this survey are broadly concordant with earlier reports (Ali & Ripley 1983) and a more recent survey (Balasubramaniam *et al.* 2004, 2007). However, there has been little systematic effort at estimating abundance or population densities of hornbills in earlier work, and the present survey presents a baseline, across localities, of encounter rates as well as density estimates from select areas of importance.

The importance of moist forests for the Malabar Grey Hornbill and the larger hornbills also stands out. In addition, the Malabar Pied Hornbill appears to prefer lower elevation riverine areas, including many sites outside designated PAs—habitats prone to a range of threats such as encroachments, agriculture, monoculture timber plantations, hydro-electric and irrigation projects, tourism and urban development (e.g., Vazhachal–Athirapilly population along the Chalakudy River threatened by the proposed Athirapilly dam). It is also noted to be an apparently irruptive or dispersive migrant over a wide landscape in Goa (Lainer 2004). Although distributed more widely across localities in central India into Orissa, and in Sri Lanka, the Malabar Pied Hornbill appears to be currently patchily distributed along the Western Ghats with reports indicating declining populations particularly in the southern Western Ghats and Kerala (Sugathan & Varghese 1996; Sashikumar *et al.* 2005; Nameer & Praveen 2006; Praveen & Nameer 2009).

Photo: *Kalyan Varma*

Malabar Grey Hornbill female feeding on *Vitex altissima*.

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Looking ahead, it is essential to establish baselines through population estimation, discovery and monitoring of nest and roost sites, especially in the sites and landscapes identified as critical for hornbill conservation by this survey. In some of the sites, sizable hornbill populations also occur in reserved forests outside designated protected areas. These require particular attention as these are also subject to greater pressures of hunting and resource extractions. The larger hornbills, particularly the Great Hornbill, are known to be nomadic during the non-breeding season. During these forays, they seem to track fruiting trees in habitats that they do not usually reside in and therefore can be seen in dry deciduous tracts adjoining evergreen forests. Therefore, it becomes necessary for the protection and conservation of areas much larger than their "preferred" or even nesting habitats.

Currently 10% of the land area of the Western Ghats receives some level of protection within 43 wildlife sanctuaries and 13 national parks (Rodgers *et al.* 2002; Kumar *et al.* 2004). Substantial areas of forest and natural vegetation also lie outside existing protected areas as reserved forests, protected forests, private forests, grasslands, and wetlands. Considering just the tropical wet evergreen forests of the Western Ghats, a recent assessment reports that only one-fourth of the total area (15,057 km) of this forest type is relatively un-fragmented, with 74% lying outside protected areas (CEPF 2007). Information of the distribution and occurrence of species obtained over these landscapes can be used to design appropriate conservation strategies. In the landscape adjoining forest areas in the Western Ghats, large tracts of plantations are distributed (over 4,500 km of tea and coffee plantations alone), which are also often important habitats for wildlife, or areas through which many wildlife species move (Raman & Mudappa 2003; Kumar *et al.* 2004; Raman 2006; Bali *et al.* 2007). In recent times, there has been increasing interest worldwide in the conservation value of countryside landscapes within and around existing conservation reserves. There is a need to promote hornbill conservation and the use of native shade trees among plantation owners, possibly linking with conservation incentive/certification schemes.

Line transects appear to be a useful and easily applicable method for monitoring hornbill populations (Raman & Mudappa 2003; Gale & Thongaree 2006). Besides monitoring by biologists—trained amateurs, volunteers, and forest department staff need to be involved in hornbill monitoring as successfully demonstrated in Kerala (Praveen & Nameer 2009). There is a need to develop a management and action plan for monitoring, protection, and conservation of critical hornbill populations. This has to be developed by a committee consisting of local forest department, NGOs, local people, and a field/conservation biologist acting as a facilitator. At a number of locations we found low awareness of hornbill species occurrence or abundance, even among forest staff in protected areas. Conservation education and awareness thus need to go hand-in-hand with all protection and conservation efforts.

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Photo: Kalyan Varma

Malabar Grey Hornbill male.

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Great Hornbill male.

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APPENDIX

Details and locations of transects surveyed at various sites along the Western Ghats (GA—Goa, MH—Maharashtra, KE—Kerala, KA—Karnataka, TN—Tamil Nadu).

State	Place	Date	Habitat*	Place	Tno	Start (N)	(E)	End (N)	(E)	Length (km)
GA	Bondla	08.02.2005	XDF	Through forest trail to orchard	1	15.43483	74.10067	15.43420	74.10527	1.83
GA	Bondla	08.02.2005	XDF	Behind canteen into forest	2	15.43662	74.10431	15.44337	74.11265	1.74
GA	Bondla	09.02.2005	XDF	Uphill	3	15.43624	74.10033	15.42782	74.10391	2.18
GA	Mollem	10.02.2005	MDF	Near RO into MDF	4	15.37582	74.23635	15.38110	74.24231	1.96
GA	Mollem	11.02.2005	MDF	Khas-Kond towards Old Surla trail	5	15.41047	74.21070	15.41055	74.21783	3.54
GA	Mollem	11.02.2005	SEF	Khas-Kond towards Tambdi Surla	6	15.42057	74.21080	15.43918	74.25275	7.72
GA	Mollem	12.02.2005	SEF	Mudco Bungalow to Tambdi Surla	7	15.41840	74.26756	15.41497	74.20872	1.86
GA	Mollem	12.02.2005	MDF	Mudco Bungalow to Tambdi Surla	8	15.41497	74.20872	15.43918	74.25275	1.10
GA	Mollem	13.02.2005	MDF	Dudhsagar road	9	15.34129	74.25221	15.33665	74.25941	1.89
GA	Madei	14.02.2005	MDF	Nanorem–Vainguinim–border	10	15.58281	74.21738			0.85
GA	Madei	14.02.2005	SEF	Nanorem–Vainguinim–border	11			15.57673	74.25016	3.27
GA	Madei	15.02.2005	MDF	Satorem to Derodem	12	15.61436	74.21510	15.61334	74.22242	1.19
GA	Cotigao	18.02.2005	SEF	Cusquem (Kuske) transect	13	15.01788	74.21239	15.02626	74.21632	2.12
GA	Cotigao	18.02.2005	SEF	Nadquem Keri route	14	14.98322	74.22384			1.88
GA	Netravali	19.02.2005	WEF	Salginim kuccha road	15	15.01988	74.24185	15.01466	74.24582	1.12
GA	Cotigao	20.02.2005	MDF+SEF	Endrem to Zambolem	16	14.95530	74.19593	14.94598	74.19808	1.55
MH	Tansa	02.04.2005	DDF	Savardo nala	1	19.53873	73.28320	19.53332	73.27786	1.41
MH	Kalsubai	04.04.2005	SEF	Kothale, on Tolar Khind	2	19.40751	73.81431	19.40333	73.81123	1.04
MH	Bhima	05.04.2005	HEF	Bakadevi to Veer waterhole	3	19.07792	73.53838	19.08165	73.54791	1.76
MH	Bhima	06.04.2005	HEF	Kotlun-Gupt Bhima-Bhima temple	4	19.05831	73.54447	19.06159	73.54154	2.55
MH	Borivili	07.04.2005	DDF	Bhoot bungalow road	5	19.18600	72.92090	19.19669	72.92160	2.04
MH	Tungar	08.04.2005	XDF	Tungareshwar Ashram road	6	19.41933	72.91130	19.42068	72.91670	1.68
MH	Matheran	13.04.2005	HEF	To Panorama viewpoint	7	19.00418	73.28510	19.01869	73.27960	2.20
MH	Phansad	14.04.2005	DTF	Chikalgan waterhole trail	8	18.44830	72.92979	18.45466	72.92541	3.01
MH	Mahabaleswar	15.04.2005	HEF	Gotinera to Jannimatha	9	17.90398	73.67551	17.90795	73.67084	1.56
MH	Koyna	18.04.2005	DTDE	Tambi to Maruti mandir	10	17.67228	73.74529	17.67181	73.73714	3.84
MH	Koyna	19.04.2005	WEF	Kusawade	11	17.64550	73.74269	17.65121	73.73046	2.01
MH	Koyna	20.04.2005	DTDE	Rohine camp	12	17.53232	73.77124	17.53353	73.76459	1.41
MH	Koyna	21.04.2005	WEF	Kurunjawade	13	17.54084	73.75740	17.53972	73.74837	1.39
MH	Radhanagari	23.04.2005	DTDE	Idarganj ridge top trail	14	16.36899	73.99578	16.35026	73.97145	2.95
MH	Radhanagari	24.04.2005	WEF	Dajipur Savrai Sada to Patacha Dang	15	16.47481	73.88975	16.48219	73.88245	21.68
KE	Vazhachal	09.02.2006	WEF	Mud road to Adichalthotti + Vazhachal rd	1	10.29142	76.81499	10.28371	76.80479	3.49
KE	Vazhachal	10.02.2006	WEF	Ambalapara towards Meenchalali	2	10.32521	76.73257	10.33386	76.72245	1.95
KE	Vazhachal	11.02.2006	WEF	Poringalkuthu to Orukomban	3	10.32418	76.64621	10.33194	76.63884	1.16
KE	Vazhachal	15.02.2006	WEF	Sheikalmudi–Mudiyankundru trail	4	10.33357	76.83002	10.33765	76.82821	1.07
KE	Vazhachal	16.02.2006	WEF	Melmadu to Ambalapara	5	10.34127	76.76520	10.33287	76.76474	1.29
KE	Nelliampathy	21.02.2006	WEF	Towards Anaimada through Minampara Estate	6	10.54201	76.70195	10.53720	76.70927	1.21
KE	Nelliampathy	22.02.2006	WEF	Mud road–Nemmara KFRI cane stand 1991	7	10.54374	76.67671	10.54766	76.68159	1.14
KE	Peechi	23.02.2006	DDF	Peechi behind pavilion	8	10.53538	76.37744	10.53048	76.37177	1.04
KE	Chimmony	25.02.2006	LEF	Thottapara trail	9	10.42553	76.46398	10.42474	76.47103	1.34
KE	Periyar	26.03.2006	MDF	Mullakudi road	10	9.58243	77.22203	9.57366	77.22580	1.47
KE	Periyar	28.03.2006	MDF	Anjuruli road	11	9.58524	77.16228	9.57760	77.16402	1.21

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APPENDIX

Details and locations of transects surveyed at various sites along the Western Ghats (GA—Goa, MH—Maharashtra, KE—Kerala, KA—Karnataka, TN—Tamil Nadu).

State	Place	Date	Habitat*	Place	Tno	Start (N)	(E)	End (N)	(E)	Length (km)
KE	Parambikulam	31.03.2006	LEF	Orukomban-Mudhuvarchal Road	12	10.38340	76.62411	10.39175	76.61870	1.21
KE	Goodrickal	04.04.2006	WEF	Chendamarakokka	13	9.45408	77.13031	9.45323	77.13374	1.22
KE	Silent valley	21.05.2006	WEF	Sairandhri	14	11.08443	76.46723	11.08509	76.45470	1.94
KE	Wayanad	23.05.2006	DDF	Ambukuthi vayal to Ayamangalam patch	15	11.66158	76.38345	11.65527	76.39286	1.41
KE	Aralam	24.05.2006	LEF	Uruppukunnu watchtower towards Parriputhode	16	11.95304	75.82525	11.96095	75.81708	1.34
KE	Malayattur	26.05.2006	LEF	Thalumkundam road tow Ernakulamkudi	17	10.21748	76.69526	10.22378	76.68397	1.47
KA	Anshi	12.10.2005	WEF	Trek route 1 near ANC	1	15.00978	74.38722	15.01992	74.38924	1.41
KA	Anshi	13.10.2005	WEF	Kadra viewpoint road	2	14.95057	74.37236	14.94625	74.38763	2.75
KA	Dandeli	15.10.2005	MDF	Shiroli-Mandurli road core area	3	15.11701	74.58702	15.13173	74.57415	3.32
KA	Dandeli	16.10.2005	MDF	Gund-Vagali trail	4	15.07548	74.52791	15.08078	74.53759	1.68
KA	Dandeli	17.10.2005	WEF+ MDF	Kanchikallgudda viewpoint	5	15.04442	74.57093	15.02829	74.58039	2.96
KA	Talacauvery	06.05.2006	WEF	Talacauvery–Munrod tract	6	12.36608	75.48985	12.35531	75.48366	1.61
KA	Subrahmanya	07.05.2006	MDF	On Bisle Ghat Road	7	12.69387	75.61631	12.69395	75.62751	2.10
KA	Kudremukh	09.05.2006	WEF	From Bhadra river Kurinjal trail	8	13.19841	75.19506	13.20068	75.18714	1.34
KA	Someshwara	10.05.2006	MDF	From Sitanadi Nature Camp, Ikkodlu trail	9	13.48405	75.00561	13.46975	74.99970	1.59
KA	Mookambika	11.05.2006	MDF	Kothalamukki game road	10	13.83462	74.81025	13.83612	74.81436	1.41
KA	Sharavati	12.05.2006	WEF	Aedigudda-Nagavalli	11	14.06653	74.67269	14.07806	74.66906	1.47
KA	Shettihalli	13.05.2006	MDF	Anigeri trail	12	13.86593	75.42367	13.86396	75.41346	1.34
KA	Bhadra	14.05.2006	MDF	Kesave-Madla road	13	13.49044	75.61447	13.50683	75.61393	1.44
TN	Anamalai	02.09.2005	WEF	Sheikalmudi-Palaganar-Manamboli	1	10.32703	76.84983	10.33714	76.85175	1.28
TN	Anamalai	03.09.2005	WEF	Koomatti-Manamboli	2	10.40161	76.87666			1.66
TN	Anamalai	04.09.2005	WEF	Kumati-Varagaliar trek shed	3	10.40235	76.87916	10.40175	76.88884	1.42
TN	Anamalai	04.10.2005	WEF	Manamboli elephant transect	4	10.34827	76.89783			2.58
TN	Anamalai	2005–2006	WEF	Korangumudi	5	10.31412	76.91214	10.30872	76.90361	1.83
TN	Anamalai	2005–2006	WEF	Pannimade*	6	10.29677	76.89227			1.20
TN	Anamalai	2005–2006	WEF	Puthuthottam	7	10.33383	76.96735	10.33511	76.96461	2.45
TN	Anamalai	2005–2006	WEF	Tata Finlay	8	10.34755	76.93382	10.34705	76.93352	1.15
TN	Anamalai	2005–2006	WEF	Anaigundi	9	10.42175	76.83122			2.17
TN	Anamalai	2005–2006	WEF	Andiparai	10	10.39060	76.99438	10.40000	76.99117	2.08
TN	Anamalai	2005–2006	WEF	Karian Shola 1	11	10.47045	76.84110	10.49023	76.83065	2.85
TN	Anamalai	2005–2006	WEF	Karian Shola 2	12	10.46388	76.83660			2.85
TN	Anamalai	2005–2006	WEF	Iyerpadi	13	10.37308	76.99138	10.36070	76.99738	2.08
TN	Anamalai	2005–2006	WEF	Akkamalai	14	10.32815	77.02172	10.34570	77.02008	1.94
TN	Anamalai	2005–2006	WEF	Iyerpadi Church	15	10.36935	76.97515	10.37232	76.98078	1.70
TN	Anamalai	2005–2006	WEF	Varagaliar	16	10.42007	76.86811	10.71155	76.88231	2.11
TN	Anamalai	2005–2006	WEF	Banathiar	17	10.40335	76.87857	10.41370	76.88023	2.05
TN	Anamalai	2005–2006	WEF	Manamboli	18	10.34827	76.89783			1.80
TN	Anamalai	2005–2006	WEF	Sheikalmudi	19	10.32707	76.84982	10.33793	76.85755	1.87

* DDF—Dry deciduous forest, DTF—Dry thorn forest, DTDE—Dry thorn and degraded deciduous dry evergreen forest, XDF—Mixed deciduous forest, MDF—Moist deciduous forest, SEF—Semi-evergreen forest, LEF—low elevation wet evergreen forest, HEF—Sahyadri or northern wet evergreen forest, WEF—Wet evergreen forest. *—Location approximate.

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Conservation of birds of the Andaman & Nicobar Islands

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Abstract

The Andaman and Nicobar Islands have a rich variety of flora and fauna with many rare and endemic species. Realising the importance of the need for conservation of the biodiversity of this fragile island ecosystem, the Salim Ali Centre for Ornithology and Natural History undertook several studies with a focus on birds and their habitats. An overview of these studies, a summary of the results, and conservation perspectives are presented here. A total of 288 avian spp., including subspecies, are recorded from these islands. Five species were studied in detail, namely Nicobar Megapode *Megapodius nicobariensis*, Narcondam Hornbill *Aceros narcondami*, Andaman Teal *Anas albogularis*, Andaman Crake *Rallina canningi*, and Edible-nest Swiftlet *Collocalia fuciphaga*, and species-specific measures for the conservation of these birds, and their habitats, were recommended.

Introduction

Andaman and Nicobar Islands, one of the major island archipelagos of India, are well known for their rich biodiversity (Saldanha 1989; Vijayan *et al.* 2000; Jayaraj & Andrews 2005). However, island communities are a most vulnerable biota, and island ecosystems are not only very fragile, but also harbour a higher proportion of endemics with greater chances of extinction (Castellata *et al.* 2000)—because of rarity, inbreeding, natural calamities, introduced species, and so on (Brooks *et al.* 1997). Forest birds, especially those on islands, are more threatened (Stattersfield *et al.* 1998; BirdLife International 2001). Saldanha (1988) has reviewed the studies conducted in the Andaman and Nicobar Islands. The Zoological Survey of India and the Bombay Natural History society have been conducting faunal surveys on these islands. However, detailed ecological studies were few and hence the Salim Ali Centre for Ornithology and Natural History (SACON) undertook several studies with a focus on the conservation of birds and their habitats. Ravi Sankaran and I initiated these studies. An overview of the studies on the birds of these islands, especially by SACON and the conservation issues are presented here.

Study area and methods

The Andaman and Nicobar Islands (6 45′N—13 41′N 92 12′E—93 57′E), in the Bay of Bengal, are spread over 8,249 km², comprising the Andaman Islands (6,408 km²), and Nicobar Islands (1841 km²). Jayaraj & Andrews (2005), and Andrews *et al.* (2006) have presented the latest details regarding biodiversity, and the state of the environment, respectively, of these islands.

SACON started preliminary surveys of the birds of these islands in 1992, as a priority area for research and conservation. Status surveys were conducted, following strip transects and stratified sample counts, for the birds in general and especially for a few target species namely, Nicobar Megapode *Megapodius nicobariensis*, Andaman Teal *Anas (gibberifrons) albogularis*, Narcondam Hornbill *Aceros narcondami*, Edible-nest Swiftlet *Collocalia fuciphaga*, and Andaman Crake *Rallina canningi*. Status and distribution of some of the species, especially the endemics, and also ecology of the target species were studied following standard methods (Pettingill 1985; Bibby *et al.* 1992). Studies of target species covered different seasons, except for the Narcondam Hornbill. Habitat characterisation of the Andaman Islands, and identification of high bird diversity areas were done by bird counts and using remote sensing and GIS techniques following Roy *et al.* (1986), Prasad *et al.* (1998), and IIRS (2003). The consequences of the tsunami of December 2004 on the Nicobar Megapodes was assessed in 2005, and a study is under way on the restoration of the affected areas. The impact of nest collection of Edible-nest Swiftlets was studied by monitoring the nesting colonies in caves and was followed up by developing a programme for in-situ and ex-situ conservation of this species (Sankaran1998a; Anon. 2008), which is being continued in collaboration with the Forest Department of Andaman and Nicobar Islands.

Results & Discussion

Initially, a review of the status and distribution of avian taxa was prepared by Sankaran & Vijayan (1993), which listed a total of about 274 including 106 endemics. However, all did not accept status of a few taxa. During our surveys from 1992 to 1998, only a few species were observed due to the following reasons: 1) more emphasis was given to resident and endemic species, and 2) many sub-species could not be differentiated without catching them and taking various morphometric measurements During these surveys we found that seven endemic taxa were very common in Andamans—Green Imperial Pigeon *Ducula aenea andamanica*, Red-breasted Parakeet *Psittacula alexandri abbotti*, Black-naped Oriole *Oriolus chinensis andamanensis*, Racket-tailed Drongo *Dicrurus paradiseus otiosus*, Asian Fairy-Bluebird *Irena puella andamanica*, Asian Glossy Starling *Aplonis panayensis tytleri*, and Red-whiskered Bulbul *Pycnonotus jocosus whistleri*, of which the last two occur also on Nicobar (Vijayan 1999). The Andaman Dark Serpent Eagle *Spilornis elgini*, a near-threatened species, but also cited as one of the rare birds of the world (Mountfort 1988), was rather common during this survey. Ten species were added

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(Vijayan *et al.* 2000) to the existing list for these islands (Sankaran & Vijayan 1993) and during 2003–2004 we added three more (Vijayan *et al.* 2005; Mamannan & Vijayan 2009), while Yahya & Zarri (2002a) added another, taking the list to 288. Studies in the Nicobar Islands have revealed the status of several endemic birds and suggestions for developing a protected area network have been proposed (Sankaran 1995, 1997, 1998b). Many endemics were rare and we could not gather enough data to determine their status. Three species on the islands were found assessed to be of immediate conservation concern and were chosen for detailed studies—Nicobar Megapode, Narcondam Hornbill, and Andaman Teal (Vijayan 1993).

The avifauna of the Andaman Islands shows greater affinity to that of south-east Asia and mainland India, than with that of Nicobar Islands (Vijayan *et al.* 2005). Endemic species preferred moist forests and Andaman Cuckoo-Dove *Macropygia rufipennis*, Andaman Hawk-Owl *Ninox a. affinis* and Andaman Crake were rare; the last species being recorded for the first time from North and Little Andaman (Vijayan *et al.* 2005). SACON's landscape ecology study has generated biological richness maps, with areas of different grades, for each major island group; Little Andaman showed a third of its area as having very high priority, followed by South Andaman (Vijayan *et al.* 2005).

Nicobar Megapode

The Nicobar Megapode has two sub-species: *M. n. nicobariensis* inhabits the Nancowry group of islands north of Sombrero Channel, mainly Nancowry, Teressa and Bomboka, and *M .n. abbotti*, the Great Nicobar group of islands, mainly Great Nicobar. **The** population of the former was estimated at 1,200–2,100 and of the latter between 3400 and 6000 (Sankaran 1995). Sankaran & Sivakumar (1999), Sivakumar (2000), and Vijayan *et al.* (2000) studied its ecology. This species is a primitive mound-nester of the littoral forest (Ali & Ripley 1987), mainly restricting itself to within 100 m of the beach. The populations showed declines in many islands where the coastal forests were destroyed or disturbed and the species is threatened (vulnerable) under IUCN criteria (BirdLife International 2001, 2008). The present status, after tsunami, reveals a decline of about 70%, as the littoral forest has been heavily destroyed (Sankaran 2005; Sivakumar 2007).

Narcondam Hornbill

This species has a highly restricted range (6.82 km^2) on Narcondam Island in North Andaman. Its population was estimated at 330–360 in 1998 (Sankaran 1998c), showing a decline from the 1972 record of 400 (Hussain 1984). It is threatened (vulnerable) under IUCN category (BirdLife International 2008). Sankaran (1998c), and Vijayan *et al.* (2000) documented its altitudinal distribution, nests, and population structure . Breeding birds were over four years old and constituted around 46–53% of the population. A majority (88%) of the nests was below 200 m altitude while the younger non-breeding birds occupied elevations >300 m. The nests were located in holes on the trunk or broken branches of large trees. Birds fed on a wide variety of fruits and invertebrates and occasionally small reptiles.

Another short-term study was carried out between January and March 2003 on roosting and nesting by Vivek & Vijayan (2003). Their population estimate was 320–340 birds, which was similar to that of the earlier study but differed from the 432 of Yahya & Zarri (2002b), . These birds used mature undisturbed forests with large trees for nesting and roosting. Additional information was obtained on roosting and pre-nesting activities.

A megapode on the banks of the Galathea River at South Bay, Great Nicobar Island (2002).

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Adult birds roosted in pairs on large trees at elevations of <255 m, and juveniles, in small flocks of three to seven, on a branch of a tree located at higher elevations.

Andaman Teal

The Andaman Teal is restricted to the Andaman Islands and it has long been considered globally endangered at the sub-species level (Green 1992). Green (1992) designated the Andaman Teal as 'vulnerable' or 'doubtfully vulnerable', and Vijayan (1996), Green (1996), and Anon. (2001) categorized it 'endangered', at sub-species level. This taxon has been raised to full species status as *Anas albogularis* by Rasmussen & Anderton (2005). However, BirdLife International (2001, 2008) has not recognised this, and continues to list it as sub-species. This species is the only threatened endemic duck in India, with the exception of the Pink-headed Duck *Rhodonessa caryophyllacea*, which is believed to be extinct. The Andaman Teal inhabits freshwater streams, ponds, swamps and brackish water swamps, tidal creeks and estuaries (Ali & Ripley 1987). A detailed study on this species during 1995–1998 estimated its population at 500–600 (Vijayan *et al.* 2000), and later studies, during 2003–2004 also found these estimates valid (Vijayan *et al.* 2006). However, fluctuation in numbers was very high because of local movements, and the counts were not simultaneous, hence it was difficult to get a realistic population estimate. Ecology of this species showed differential use of habitats at different times. Nesting pools were 20–50 cm deep, mainly brackish, and located in coastal areas, 50–100 m from the hightide line. The nest was a platform of grass or reed mat, 20–35 cm above water, among the reeds, and 20–50 cm from open water (Vijayan *et al.* 2000, 2006; Vijayan 2006).

Edible-nest Swiftlet

The Edible-nest Swiftlet, a cave dwelling species, ranges from the Andaman and Nicobar Islands through Indonesia to the Philippines—the endemic race on the islands being *C. f. inexpectata*. Its population showed declines due to indiscriminate and unrestricted nest collections as the nests are made of its saliva, and the main ingredient of 'bird-nest soup' (Sankaran1998a; Sankaran 2001). Subsequently, a programme was developed in 2002 for in-situ and ex-situ conservation, the latter using the White-bellied Swiftlet *C. esculenta* as a foster parent. It has been progressing well; the chicks of the Edible-nest Swiftlet foster-reared by the White-bellied Swiftlet have come back for nesting; artificial houses are also found to be used by them for nesting, showing the suitability of this programme for farming this species for its sustainable use and conservation (Sankaran & Manchi 2008; Anon. 2008). They also found that in-situ conservation has paid dividends, as protection provided to the caves has helped in substantially increasing the population of the Edible-nest Swiftlet at the selected sites.

Andaman Crake

The Andaman Crake is rare and endemic to the Andaman Islands. So little is known about its ecology and biology that BirdLife International (2001) listed it as 'data deficient'. Hence, a detailed study was carried out during 2004–2007 with status surveys on various islands and ecological studies at two locations, but mainly at Pathilevel, North Andaman (Vijayan & Ezhilarasi 2007; Ezhilarasi 2009). Its population could not be estimated as we had problems in sighting the bird and assessing the distance of calls. The mean encounter rate of this bird was low, 0.29 bird/ point. Smaller islands had lower abundance, but it was higher on larger islands, especially in South, Middle and North Andaman. The study shows that the bird is a habitat specialist of moist forests with clumped distribution showing preference for semi-evergreen and evergreen forests. Its nest is cup-shaped, made up of leaves and twigs, located mostly on the ground, between the buttresses of trees, within 200 m of the forest's edge and near water. Although the population could not be estimated, taking into consideration its low encounter rate, the IUCN criteria such as the restricted range of distribution and a fragmented population with declining locations, area of occurrence estimated to be <5,000 km2 (around 4,000 km2), area of occupancy of around 700 km2, this species is recommended to be considered 'Vulnerable' under 'threatened' category (Vijayan & Ezhilarasi 2007). At present BirdLife International (2008) has listed it as 'near threatened'.

Conservation issues and suggestions

Habitat loss or degradation, hunting, and introduced species are the major threats to birds on these islands, as they are to all the threatened birds of Asia, mainly because 80% are forest species, especially of lowland tropical forests) 30% have a restricted range of distribution as on the islands (BirdLife International 2001; Riley 2002) where habitat changes affect the species much more than on the mainland (Brooks *et al.* 1997). Habitat loss, in many parts of the world, is mainly due to human interferences (Castellatta *et al.*2000). The population problem (mainly because of the settlers from mainland India) has been identified as one of the root causes for habitat changes and other related problems with the development of the area (Davidar *et al.* 1995, 1996; Vijayan 1996,; Sankaran 1997; Vijayan *et al.* 2005). The Forest Survey of India reports of 1999 and 2005 have shown a decrease of 1.5% and 8.6% of forests during 1994–1998 and 1999–2003 respectively, in the Andaman Islands, which are attributed to encroachment by settlers (FSI 1999, 2005). However, there is hope in the future—with the stopping of commercial forestry (logging) operations, removal of encroachments, and habitat restoration (Vijayan *et al.*2006).

The most immediate threat in the Nicobars is the proposal to make Great Nicobar a free port and to create a dry dock and refueling base for international shipping at the mouth of the Galathea River (Vijayan *et al.* 2000). Sankaran (1997) had suggested developing a protected area network for the Nicobar Islands. The 2004 tsunami created havoc, much more in the Nicobars, but natural regeneration along with habitat restoration could improve the situation (Sivakumar 2007).

Data deficient, threatened, and near threatened species, especially endemic, should be given higher priority for research and conservation. Andaman and Nicobar Islands form two of the 218 Endemic Bird Areas of the world with 18 endemic species (Stattersfield *et al.* 1998) and with the addition of the new species, Nicobar Scops-owl *Otus alius* (Rasmussen 1999), now there are 19. Four species are common to both the Andaman and Nicobar groups of islands. Rasmussen & Anderton (2005) have given full species status to the Andaman Teal and their list shows 20 endemics in Andaman and eight in Nicobar. According to BirdLife International (2008), of the 19 endemics, four are threatened, one data deficient, and 11 near-threatened. Nicobar Scops-owl is data deficient, and Nicobar Sparrowhawk *Accipiter butleri* and Nicobar Bulbul *Hypsipetes nicobariensis* are the two threatened taxa on Nicobar Island, which are not studied. Many other species also require detailed surveys during different seasons, concentrating on their specific habitats, in order to assess their status. BirdLife International (2001) has documented that more than 80% of the threatened birds in Asia require population status for monitoring. Meaningful conservation measures can be suggested only after understanding the ecological requirements of these species (Vijayan 1996).

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Although an ecological study of the Andaman Teal was conducted for two years, evaluating its habitat requirements, an estimate of such available habitats and movement patterns need to be worked out immediately and site-specific action needed to save this species from extinction (Vijayan 2006; Vijayan *et al.* 2006). The ecology of the Narcondam Hornbill, although partly studied during one breeding season, has yet to be studied intensively (Sankaran 1998c; Vijayan *et al.* 2000; Vivek & Vijayan 2003). The Andaman Crake has a low nesting success, and its fledgling success could not be recorded. Its population is naturally fragmented and there has been a loss of the species from many localities due to habitat loss and degradation. Considering all these factors, management regimes should ensure that adequate protection is given to this species, especially during its breeding season, and full protection of the crucial areas from any kind of human and related disturbances, especially in the larger islands (Vijayan & Ezhilarasi 2007). Some of the above areas are partly or fully protected and many others are near human settlements. Vijayan & Sankaran (2001) have already proposed the southern part of Rutland Island be declared an Andaman Teal Sanctuary. The habitat of this Crake in the localities without full protection may be declared as Sanctuaries or Conservation Areas, delineating the boundaries depending on the status of the land and feasibility. Islam & Rahmani (2004) have listed 19 sites in the Andaman and Nicobar Islands as Important Bird Areas and conservation actions are needed for these and other species-specific sites.

Population of the Edible-nest Swiftlet was found to decline because of the unsustainable harvesting for trade (Sankaran 1998a). Recent studies have shown that nests could be utilised without much adverse effect on the population if protection is provided and collected in a planned manner and also through farming as in many south Asian countries.

Hunting or poaching occurs even in protected areas mostly because of the inadequate facilities with the Forest Department and lack of awareness in the local communities, which should be addressed with all seriousness (Vijayan & Sankaran 2001; Vijayan *et al.* 2005, 2006). Suggestions for the conservation of the avifauna and biodiversity of these islands, resulting from various studies, should be discussed and implemented to maintain these ecologically sensitive and still pristine areas of our country.

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— *In memoriam* —

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Observations on Rufous-necked *Aceros nipalensis* and Austen's Brown *Anorrhinus austeni* Hornbills in Arunachal Pradesh: natural history, conservation status, and threats

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Datta, A. 2009. Observations on Rufous-necked *Aceros nipalensis* and Austen's Brown *Anorrhinus austeni* Hornbills in Arunachal Pradesh: natural history, conservation status, and threats. *Indian Birds* 5 (4): 108–117.

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In 1997–1998, Ravi Sankaran had spent three months studying the most interesting, and intriguing, hornbill species found in India, with the smallest global range—the Narcondam Hornbill Aceros narcondami*—restricted to a 6 km² island of the Andaman Islands archipelago. While others before him had spent time on the island and made observations, his were the first systematic and meticulously collected data of a study carried out throughout the breeding season, on a large number of nests. Unfortunately, he never wrote up the work as a publication, but he put his research to good use for conservation action and managed to get the goats that were affecting the regeneration of many hornbill food plants, removed from the island. My paper, in this memorial issue, is about my limited observations on two of the lesser-known, and threatened hornbills of north-eastern India.*

Abstract

Among the five species of hornbills that occur in north-eastern India, the least studied are the endangered Rufous-necked Hornbill *Aceros nipalensis*, and the Brown Hornbill *Anorrhinus austeni*[1], which has a restricted distribution in India. Based on field surveys conducted in Namdapha National Park, and several forest divisions in eastern Arunachal Pradesh, during 1996–1999 and 2002–2004, I present information on their distribution and relative abundance. I also present some information on diet, flock sizes, canopy levels used, breeding biology, and nesting records for both these species.

Introduction

India is home to nine species of hornbills (Bucerotidae). Apart from the Great Hornbill *Buceros bicornis*, and Oriental Pied Hornbill *Anthracoceros albirostris*, which also occur in other parts of India, three species—Wreathed *Aceros undulatus*, Rufous-necked *A. nipalensis*, and Austen's Brown *Anorrhinus austeni* Hornbills—occur in north-eastern India.

Collar *et al.* (1994) listed ten globally threatened hornbill species, of which two occur in India, the Rufous-necked, and the Narcondam *A. narcondami* Hornbills, while three —Malabar Grey *Ocyceros griseus*, Malabar Pied *A. coronatus*, and Austen's Brown Hornbills—are listed as 'near threatened'. All these species also have restricted distributions.

Among the species occurring in north-eastern India, the Rufous-necked Hornbill is listed as 'vulnerable' by IUCN (2006), while the Great and Austen's Brown Hornbills are listed as 'near threatened' IUCN (2006). The two main factors that affect Austen's Brown and Rufous-necked Hornbills in north-eastern India are hunting and habitat loss.

The two *Aceros* species are more widely distributed within north-eastern India than the smaller, co-operatively breeding, Austen's Brown Hornbill, which is restricted to upper Assam and eastern Arunachal Pradesh, south of River Brahmaputra. The current distribution of Austen's Brown Hornbill is inadequately known and the factors responsible for its localised occurrence within north-eastern India, and its present rarity, would be interesting to determine. It is uncommon in deciduous forest and locally common in evergreen forest (Ali & Ripley 1987), and was reported to be very common, about 80 years ago, in the plains of eastern Assam (Baker 1927). Chowdhury (2000) provides sighting records in various small reserve forest patches in eastern Assam, Manipur, and Nagaland. Pawar & Birand (2001) have also reported its occurrence in the Barail Range.

Hunting of all hornbill species, by most tribal communities, is a major threat, and a primary cause for hornbill decline in many areas. The breeding biology, nest site selection, diet, and roosting patterns of the Great, Wreathed, and Oriental Pied Hornbills, and their functional role as seed dispersers have been studied in Arunachal Pradesh (Datta 2001; Datta & Rawat 2003, 2004). However, there is limited information on the natural history, breeding biology, and diet of the Rufous-necked and Austen's Brown Hornbills, in India, apart from anecdotal observations that breeding occurs between March and June (Ali & Ripley 1987), although there have been long-term studies in Thailand (Poonswad 1995; Poonswad *et al.* 1987, 1988, 1998; Poonswad & Tsuji 1994; Chimchome *et al.* 1998).

In this paper, I present information on diet, flock size, habitat use, distribution, and nesting of Rufous-necked and Austen's Brown Hornbills, collected between 1996 and 2004 in eastern Arunachal Pradesh. The threats to these species, due to current habitat loss, and hunting practices, are also outlined and discussed.

[1] Rasmussen & Anderton (2005) place it in the genus *Ptilolaemus*.

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Photo: *Aparajita Datta*

A male Rufous-necked Hornbill *Aceros nipalensis* (about 2 years old) in Namdapha National Park.

communities: *Singpho*, *Tangsa*, *Chakma*, and others, to the west of the park, and *Lisu* and *Nepali*, to the east (Datta 2007).

Kamlang Wildlife Sanctuary (Kamlang WS; 786 km²; 27 40'N–28°0'N 96 20'E–96 55'E): lies to the north of Namdapha NP, in Lohit district. It has steep mountainous terrain, and is criss-crossed by numerous rivers and streams, with some high altitude lakes. The altitude varies from 550 m to 4200 m. The floral and faunal species composition is believed to be similar to that of Namdapha NP, although no research has been undertaken here. To the south of Kamlang WS, are lowland forests under the Namsai Forest Division with several reserve forests (RF)—Turung, Kamlang, Tengapani, Manabum, and unclassed state forests (USF). The main tribal communities here are the *Miju Mishmi*, and the *Khampti* in the lower areas of the district.

Jairampur Forest Division (Jairampur FD; 27 –27 40'N 95 –97 E): comprises seven RF areas that are interspersed with patches of community forests, cultivation, and villages. The area covered by the reserve forests is 307 km². These forests were operated for timber, mainly for hollong *Dipterocarpus macrocarpus*, and mekai *Shorea assamica*, till 1996, when timber extraction was banned, although some extraction occurred up to 2000. The remaining areas are USF, where villagers practice shifting cultivation. The legal status of USF areas is not defined. They are simply designated as any forest that is not included in RFs and village forest reserves. There is no specific legal provision granting rights and concessions to local people for collection from, or use of, these forests, yet it is a customary tradition and fulfils local people's needs. None of them are notified. There is no land tenure system and the government does not have any rights over USF/community land. Parts of the RFs here are almost undisturbed forests, especially towards the Myanmar border. The area has tropical evergreen forests, dominated by the two commercially important dipterocarp species. The area has 28 villages, with an estimated population of *c.* 6000. The main tribe here

Survey areas

Namdapha National Park (Namdapha NP; 27 23'–27 39'N 96 15'–96 58'E): located in eastern Arunachal Pradesh, Changlang district, comprises an area of 1985 km , with a wide altitudinal variation from 200 m to over 4500 m at Dapha Bum, the highest point in the park. The variety of habitats found here, ranging from temperate, subtropical, and tropical rain forests, has facilitated the presence of a diverse and rich fauna. The Kamlang Wildlife Sanctuary borders it on the north. To the south and south-east lie high mountain ranges and the international border with Myanmar. There are many small streams and rivers that drain into the Noa-dihing, a tributary of the Brahmaputra, flowing east to west through the park. It is contiguous with reserve forests and sanctuaries to the south and west. Towards the eastern boundary there are community forests in Vijaynagar circle (637 km²). The area is populated by a number of

Photo: *Rohit Naniwadekar*

Austen's Brown Hornbill *Anorrhinus austeni* in logged forest in eastern Arunachal.

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is the *Tangsa*, which is divided into numerous clans and sub-tribes. ***Deomali Forest Division*** (Deomali FD; 305 km²; 26 55'N–27 15'N 95 10'–95 40'E): in Tirap district. Comprises USF, and five village forest reserves (VFR; 368 km²). Most of the area lies in the Patkai Hills, with hilly and undulating terrain, with altitude ranging from 140 m to 1,410 m. The rivers flow from south to north; and drain into the Brahmaputra in Assam. The forest types in the area include tropical wet evergreen dipterocarp forests, semi-evergreen forests, wet bamboo brakes, and pioneer Euphorbiaceae scrub. The main tribes here are the *Nocte* and *Wancho* that inhabit the north-eastern and southern parts, respectively, of the district. There are 63 villages here with 5,178 houses and 26,360 people. Village sizes are comparatively large ranging from 24 to 149 households. Tirap district has the highest population density in the state with an increase from 36 per km² in 1991 to 42 per km² in 2001. Livestock holdings are also relatively high. The main occupation here is agriculture, most of the land in the upper *Nocte* and *Wancho* areas is under *jhum* cultivation, and many areas are severely degraded, as fallow cycles are short. Until the Supreme Court ban in 1996, timber extraction, primarily of two dipterocarp species, was carried out extensively in the lower areas. Tea estates have also come up in this district over the past 15 years.

Methods

Relative abundance of hornbills was assessed by walking trails in the forests of Rima and Pangsu RFs in Jairampur FD (April and November 2002), Changlang district, while Miao RF was visited for four days in April 2002. Turung and Kamlang RF, near Kamlang WS, and Mopaya VFR in Deomali FD, were also visited in April 2002. Rains, and the lack of field guides prevented access and exploration inside Kamlang WS. During several field visits to Namdapha NP (1996–2004), all sightings of Rufous-necked and the Brown Hornbills were recorded. Distances walked, and effort put in (in terms of days spent walking/searching), were recorded to obtain a crude estimate of relative abundance. Encounter rates (numbers per km) of hornbills are compared between Namdapha (a protected area) and the RF/USF areas (unprotected). On sighting one of the target species, the flock size, flock composition, canopy level, activity, if feeding, the food species, locality, and habitat type were recorded.

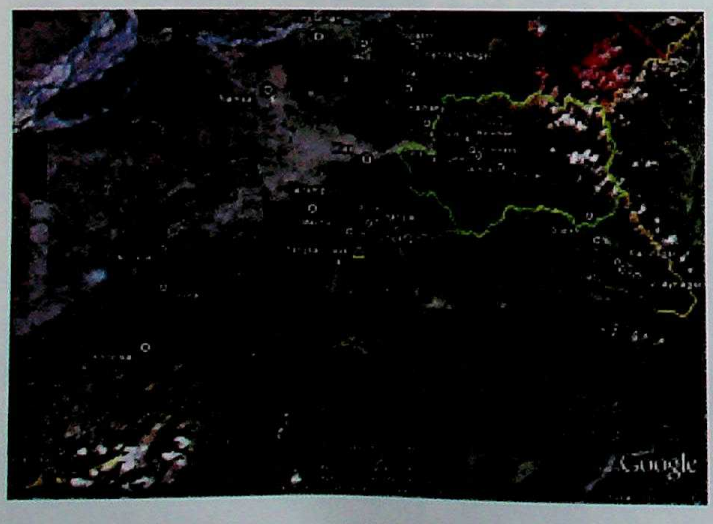

Fig. 1. Map showing survey areas in Namdapha National Park (green line depicts park boundary) and Jairampur, Deomali, Lohit FD. Villages/towns visited during the survey are marked as circles, while other locations/camps inside Namdapha are marked with squares. The yellow line depicts the international boundary with Myanmar.

A total of 74 days were spent (walks, active searches) in Namdapha NP, over several years (April 1996, November 1997, November 1998, March 1999, October 1999, December 2002–January 2003, October 2003, and April–May 2004). Short surveys were also carried out in RFs towards the south-western part of the park in Miao Reserve Forest (RF), Pangsu and Rima RFs, Jairampur FD in April–May 2002 and, November 2002. Forests near Kamlang Wildlife Sanctuary (WS) and adjoining RFs in Lohit district and, Deomali in Tirap district were also visited in April–May 2002 (Table 1). Additional information from Khonsa FD in Tirap district, visited in 1997, is also provided. Information about Rufous-necked Hornbill distribution is also presented from Eagle Nest WS, Doimara RF, Papum RF, and community forests in East, and West Kameng districts in western Arunachal Pradesh. Fig. 1 depicts the forest areas, and some of the villages visited during the field surveys in eastern Arunachal.

Results

Distribution and sighting records

Rufous-necked Hornbill: The species is vulnerable, although not critically endangered, but faces high risk of extinction in the wild in the medium-term future (IUCN 2009). It is rare in most parts of its global range, though in Bhutan it is more common. In India, populations are mainly found in Arunachal Pradesh, although it is also reported from Sikkim, and northern Bengal, in the eastern Himalaya.

It is rare in most parts of north-eastern India due to hunting and habitat loss—its status being better only in some protected areas of Arunachal Pradesh. In eastern Arunachal Pradesh, its status is better in Namdapha NP and in forests above 800 m elevation, and in western Arunachal Pradesh in East, and West Kameng districts around Eagle Nest WS and in higher areas of Papum and Doimara RF in Khellong Forest Division. It also occurs in Mehao WS (Dibang Valley district), and Tale WS (Lower Subansiri district), although it is relatively uncommon. In Namdapha NP, it is commonly sighted even at lower elevations (200–900 m). It is heavily hunted by several tribes (*Nishi*, *Wancho*, *Tangsa*, *Mishmi*, *Adi*, and *Apatani*), especially in higher elevation sub-tropical evergreen forests, where the Great and Wreathed Hornbills are less commonly seen. Forest loss is possibly a lesser threat for this species, because the condition and extent of forests at higher elevations are relatively better than in the foothills; hunting may be a more serious proximate threat to this species.

I had 101 sightings of Rufous-necked Hornbills between 1996 and 2004 (Table 1). Most were sighted in Namdapha NP (91 sightings), while seven sightings were in RFs (Rima RF, Pangsu RF in Jairampur Forest Division in eastern Arunachal, and Doimara and Papum RF, Khellong Forest Division, western Arunachal), and three in community forests (also designated as USFs in Arunachal) in the Vijaynagar area, Changlang district.

Austen's Brown Hornbill: Its global range is north-eastern India, Myanmar, Thailand, Laos, Vietnam, and southern China. Its distribution in India is restricted to eastern Arunachal Pradesh and Assam. According to Ali & Ripley (1987) it may occur or have occurred in Manipur and Nagaland; more recently, Chowdhury (2000) has reported its occurrence in these two states. It has been sighted from areas in Upper Assam in Joypur RF (Kashmira Kakati, *pers. comm.*), Tinsukia district, in the Cachar Hills (Pawar & Birand 2001), and from several other RFs in upper Assam (Chowdhury 2000).

I had a total of 31 sightings of Austen's Brown Hornbill over several visits between 1996 and 2004 (Table 1). Calls were heard in Mopaya Village Forest Reserve, Deomali Forest Division. Only

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two sightings were in Miao RF, while the rest were in Namdapha. The species is also present in Jairampur FD, as was evident from skulls and heads seen with hunters in the villages. Although it was not sighted in Kamlang WS and adjoining reserve forests in Lohit district, reports from local villagers suggest that it may occur there and is possibly the western-most distribution limit of this species. Earlier reports of this hornbill in Arunachal Pradesh were only from Namdapha (Singh 1995).

Relative abundance

Relative abundance of hornbills was obtained from trail walks in the survey areas. In trails walks between 1996 and 1999 (total distance 357 km, pooled over several visits, which includes 112 km walked from Deban to Vijaynagar), we counted 162 and 123 individuals of Rufous-necked and Austen's Brown Hornbills, respectively, with an average encounter rate of 0.32/km (± 0.49) for Rufous-necked, and 0.39/km (± 0.27) for Austen's Brown Hornbill.

In field surveys between 2002 and 2004 (total distance 326 km, which includes 230 km (two walks from Mpen/Deban to Vijaynagar), we counted 55 Rufous-necked, and 29 Austen's Brown Hornbills, with an average encounter rate of 0.28/km (± 0.32) and 0.29/km (± 0.29), respectively.

There appears to be a considerable difference between the breeding and non-breeding season in numbers of both species seen in the low- and mid-elevation forests (200–1000 m) (Fig. 1), with consistently fewer sightings and numbers in the non-breeding season (winter) for both species. However, this could also be due to the fact that most of the survey effort, in the breeding season (all years), was in the Deban–Haldibari–Hornbill–Ranijheel area, while in the non-breeding season, more effort was along the main Noa-dihing valley on the way to Gandhigram–Vijaynagar. On the other hand, the Wreathed Hornbill, which is known to make long-distance movements, is seen in the area in large flocks in the non-breeding season (winter) (Table 1).

Encounter rates of hornbills were considerably lower in reserve and community forests in Jairampur, Deomali, and Lohit FDs (total distance walked, 133 km, in April–May 2002). Three species, Rufous-necked, Austen's Brown, and Oriental Pied Hornbills were sighted; calls of Great, and Austen's Brown Hornbills were heard once. There were three sightings of seven birds [Brown, Rufous-necked and Wreathed hornbill]. The Rufous-necked hornbill was very rare in adjoining reserve and community forests it (0.004 birds/km ± 0.01). However, much of the survey in the reserve and community forests was in low-elevation forest, where Rufous-necked Hornbills generally do not occur. Austen's Brown Hornbill encounter rates were also low (0.2 birds/km ± 0.6).

An additional 116 km (15 days) were walked in Jairampur FD in November 2002 during a survey for the leaf deer (Datta *et al.* 2003), during which all hornbill sightings were noted. Two species—Wreathed and Rufous-necked Hornbills—were sighted, a total of 27 individuals from 10 sightings.

Table 1. Hornbill records in areas surveyed between 1996 and 2004 (effort in terms of days spent and distances walked) in eastern Arunachal Pradesh

Area	Year	Days spent	Locations	Effort (km walked)	Number (species)	Sightings/calls (total numbers seen)
Namdapha NP	April 1996	3	Deban-Bulbulia, 17-19 mile MV road	37	2 (RNH, BH)	7 (24), 1 call
Namdapha NP	November 1997	3	Deban-Bulbulia, 17-19 mile MV road	37	3 (RNH, BH, WH)	8 (54)
Namdapha NP/ Vijaynagar USF	November 1998	9	Deban-Vijaynagar	112	2 (RNH, WH)	24 (143)
Namdapha NP	March 1999	15	Deban-Firmbase (various trails)	126	4 (RNH, BH, WH, GH)	85 (248), 4 calls
Namdapha NP	October 1999	3	Deban-Hornbill, 17-19 mile MV road, Deban-Mpen	41	3 (BH, WH, GH)	13 (42)
Namdapha NP	December 2002	10	Deban-80 mile	102	1 (WH)	2 (23)
Vijaynagar USF	December 2002	15	80 mile -Gandhigram-Vijaynagar	28	2 (RNH, WH)	8 (32)
Namdapha NP	April 2003	7	Deban-Bulbulia, 17-19 mile MV road	ca. 40	3 (BH, GH, RNH)	14 (23+)
Namdapha NP	October 2003	7	Mpen- Gandhigram	128	1 (RNH)	2 (9)
Namdapha NP	April 2004	7	Deban-Ranijheel, 17-22 mile MV road	ca. 56	3 (BH, GH, RNH)	22 (55)
Jairampur FD	November 1998	1	Hongkap RF	14	None	—
Jairampur FD	April 2002	4	Rima, Pangsu and Miao RF	59	2 (BH, RNH)	2 (5)
Jairampur FD	November 2002	15	Nampong-Rima-Putok-Changlai-Tengpum	116	2 (RNH, WH)	10 (27)
*Kamlang WS & Namsai FD	May 2002	4	Kamlang WS, Turung & Kamlang RF	34	None	—
Deomali FD, Joypur RF	April 2002	5	Mopaya VFR, Joypur RF	40	3 (BH, GH, OPH)	1(2), 3 calls

Poor weather hampered fieldwork and only the edge of the sanctuary was visited (about 7 km along the trail to Glao lake from Wakro). Most time spent in areas near Wakro town and Turung RF.
Abbreviations: BH=Austen's Brown Hornbill; GH=Great Hornbill; OPH=Oriental Pied Hornbill; RNH=Rufous-necked Hornbill; WH=Wreathed Hornbill.

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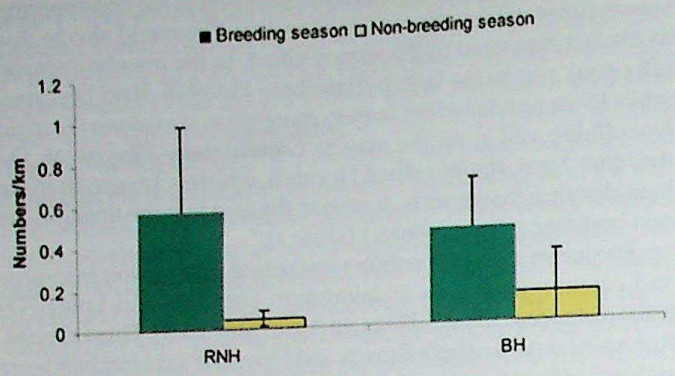

Fig. 2. Mean (± SD) Encounter rates (nos/km) of two hornbill species in breeding (n = 313, effort: 246 km), and non-breeding season (n = 55, effort: 437 km) in the Namdapha National Park.

Flock sizes

Rufous-necked Hornbills were mainly seen in pairs (45% of sightings). Only 3% of sightings were of birds in bigger flocks (> 10 birds), mostly at large fruiting trees. Austen's Brown Hornbill was mostly seen in flocks comprising more than three birds (70% of sightings). The maximum flock size was 15. There were only four sightings each, of single birds, and of pairs.

The mean flock size of the Rufous-necked Hornbill was 2.36 birds in the breeding season, while the modal and median flock size was one (n = 85 sightings). The mean, median, and modal flock size was two in the non-breeding season (n = 15 sightings). The maximum flock size seen was 19 birds in the breeding season, and 7 in the non-breeding season.

The mean flock size of Austen's Brown Hornbill was six birds in both the breeding (n =22), and non-breeding seasons (n = 5). The median and modal flock size was four in the breeding season, while in the non-breeding season median and modal flock size was two and one respectively.

Use of canopy levels

Austen's Brown Hornbill used all canopy layers equally, while Rufous-necked Hornbills were mostly sighted in the upper canopy layer (71% of sightings) (Fig. 3). This difference in the use of canopy levels is probably related to their diet and foraging strategy. While the Rufous-necked Hornbill is largely a resident (possibly territorial) frugivore feeding on canopy fruits, Austen's Brown Hornbill is more omnivorous in its diet (Poonswad *et al.* 1986), feeding much more on animal matter, which probably reflects in its use of all canopy layers.

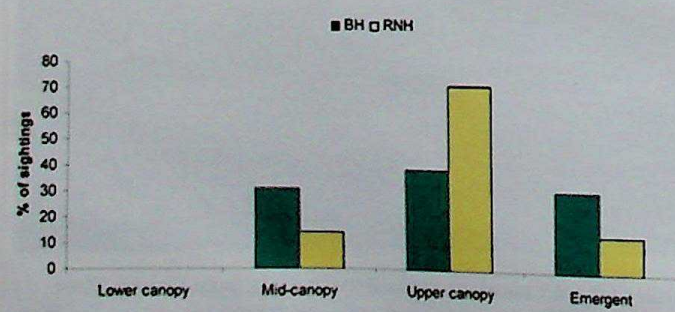

Fig. 3. Use of canopy levels by the two hornbill species in Namdapha National Park, Arunachal Pradesh. n=13 sightings for BH, 59 sightings for RNH.

Diet

Limited observations on the diet of the two species were made during walks. In addition, regurgitated seeds, dropped below two nests each, of both hornbill species, were recorded. Sixteen species were recorded in the diet of the two hornbills, 11 non-fig fruit species, and five fig species (Table 2).

The Rufous-necked Hornbill is largely frugivorous, feeding mainly on berries, drupes, and capsular fruits of primary forest species belonging to Lauraceae, Meliaceae, Myristicaceae, Annonaceae, and figs (Moraceae). No animal matter was recorded in its diet in these limited observations; however more detailed studies in Thailand suggest that it also consumes animal matter, especially crabs (Chimchome *et al.* 1998). Based on 33 feeding observations, the diet of the Rufous-necked Hornbill was made up of figs and non-fig fruits. 51% observations were on fig fruits (four species), and 48% on five species of non-fig fruits. Apart from this, regurgitated seeds of four non-fig fruit species were recorded below fruiting and perch trees visited by Rufous-necked Hornbills. From an old nest, several other species in the diet of these birds—*Horsfieldia kingii*, *Polyalthia simiarum*, and beetle remains—were deciphered. At two active nests in 2004, five non-fig fruit species were recorded.

Austen's Brown Hornbills were recorded feeding on figs and ripe fruits of *Beilshmedia* sp. during six sightings. They were also observed in April 2002, delivering fruits of five species at an active nest. There were regurgitated seeds of *Polyalthia simiarum*, *Dysoxylum binectariferum*, *Aglaia* sp., *Horsfieldia kingii*, and of some Lauraceae species, apart from defecations of fig seeds below the nest. Austen's Brown Hornbill is supposed to have a mixed diet, but is largely insectivorous. Apart from berries, drupes, capsular fruits of primary forest species—Lauraceae, Meliaceae, Annonaceae and figs (Moraceae)—they are reported to consume arthropods, mollusks, and small vertebrates (Poonswad *et al.* 1986, 1998).

Breeding season & nesting records

Rufous-necked Hornbill: The breeding season of the Rufous-necked Hornbill in Namdapha NP commences in late April, much later than that of Great, Wreathed, and Oriental Pied Hornbills further west in Pakke NP, where nesting commences by early- to mid-March in most years (Datta 2001; Datta & Rawat 2004).

In March 1999, I spent 15 days in Namdapha NP, searching for active hornbill nests in the Deban–Haldibari–Hornbill-Bulbulia–Ranijheel–Firmbase area. No active nest trees could be located. It is likely that nesting of Rufous-necked and Austen's Brown Hornbills had not commenced in mid- to late-March, because the former were sighted in pairs till the end of March, and courtship feeding was observed during the second and third weeks of March. An old nest of the Rufous-necked Hornbill, in community forests near Kathang village (10 km from Deban) outside Namdapha NP, was located with the help of a *Miju Mishmi* village headman. The nest had apparently been discovered two years ago and was used the previous year, as evident from old feathers, seeds, and seedlings of the hornbill's regular food plants. The nest was on a *Terminalia myriocarpa* (Hollock) tree, adjacent to a *jhum* field. The village headman also informed that Rufous-necked Hornbills do not start nesting till April. However, there was no nesting on this tree when it was subsequently checked in April and May that year.

I was also shown an old nest of a Rufous-necked Hornbill in community forests near Pakke-ke-Sangh village, by a *Nishi* hunter, at 1,500 m (East Kameng district) on an *Altingia excelsa* (Jutuli) tree in January 2000. Pakke-ke-Sangh village was accessed on foot from Seijosa (Pakke WS) over a two-day trek (*ca.* 83 km).

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Table 2. Food species of Rufous-necked Hornbill and Austen's Brown hornbill in eastern Arunachal Pradesh.

Tree species	Family	*Peak fruiting period	Fruit type & color of ripe fruit	Observation method & season
Polyalthia simiarum (Kari)	Annonaceae	May to June & Dec-Feb (both seasons)	Lipid-rich drupaceous carpel, black	Regurgitated seeds below nest tree
Dysoxylum binectariferum (Banderdima)	Meliaceae	March-April (breeding)	Multi-seeded arillate capsular fruit, aril black	Nest trees and trail walk
Chisocheton paniculatus (Banderdima)	Meliaceae	May-June (breeding)	Multi-seeded arillate capsular fruit, aril orange-white	Nest trees and trail walk
Horsfieldia kingii (Ramtamul)	Myristicaceae	Feb-March (breeding)	Single-seeded capsular fruit	Regurgitated seeds below nest tree
Aglaia sp.	Meliaceae	Feb-April (breeding)	Multi-seeded arillate capsular fruit, orange-red	Regurgitated seeds below nest tree
Beilshmedia sp.	Lauraceae	Oct-Nov (non-breeding)	Lipid-rich fleshy drupe, black	Trail walk, regurgitated seeds below fruit and perch trees
Cryptocarya sp.	Lauraceae	May-July (breeding)	Lipid-rich fleshy drupe, black	At nest
Canarium resiniferum (Kaladhuna)	Burseraceae	Nov-Dec (non-breeding)	Lipid-rich fleshy drupe, black	Trail walk
Cinnamommum cecidodaphne (Gonsorai)	Lauraceae	Nov-Dec (non-breeding)	Lipid-rich fleshy drupe, black	Trail walk
Hovenia acerba (Chetiabola)	Rhamnaceae	March? (breeding)	Drupe	Trail walk
Unidentified species	Meliaceae	March (breeding)	Multi-seeded arillate capsular fruit	Perch tree
**Platea latifolia*	Icacinaceae	Nov-Dec (non-breeding)	Lipid-rich fleshy drupe, black	—
Ficus macclellandi	Moraceae	Available in both seasons	Fig (syconia), bright yellow	Trail walk (April)
Ficus altissima	Moraceae	Available in both seasons	Fig (syconia), red	Trail walk
Ficus hookeri	Moraceae	Available in both seasons	Fig (syconia), reddish-black	Trail walk (November)
Ficus sp.1	Moraceae	Not known	Fig (syconia)	Trail walk
Ficus sp.2	Moraceae	Not known	Fig (syconia)	Trail walk

* Not recorded as food species in Namdapha but fruit characteristics indicate it is a hornbill food species. Recorded in Wreathed hornbills' diet in non-breeding season in western Arunachal.

Intensive searches for nests were carried out again in Namdapha in March–April 2004. However, during this period, most sightings were of birds in pairs, indicating that most birds had still not commenced nesting. Despite the abundance of suitable cavities, most birds had not started nesting even by the last week of April. Two active nests were located in the third week of April, in Namdapha. One was located on a *Terminalia myriocarpa* tree near Hornbill camp on 26 April 2004. It had probably been active since a week. Another was found on a steep slope, downhill from the 19th mile (of the Miao–Vijaynagar road), on 24 April 2004. It was located on a tall, emergent *A. excelsa*.

Subsequently, in May 2004, another nest was located in Miao RF (Akhi Nathany, *pers. comm.*). The Rufous-necked Hornbill appears to be resident and territorial (mostly sighted in pairs in particular localities), and the breeding season is between April and July/August. Unfortunately, these nests could not be monitored throughout the breeding cycle, as it coincides with the period of heavy rains in the area and both these nests were difficult to access in the monsoon. Thus, there is neither any information on the exact exit dates from the nest nor whether the nests were even successful.

Austen's Brown Hornbill: During intensive nest searches inside Namdapha in March 1999, no nests of this species could be located. The birds were mostly sighted in flocks. During the survey in Jairampur FD in 2002, a flock was sighted visiting and feeding at an active nest in Miao RF. A nest of Austen's Brown Hornbill was shown to me by a *Wancho* youth on 21 April 2002 in Miao RF. The nest cavity was located on an *Ailanthus grandis* (Borpat) tree, approximately 1 km from Miao township, on a steep hillside, near a perennial stream (about 60 m uphill from the stream). The youth had noticed a flock of noisy birds, and subsequently discovered the nest, while cutting and burning his *jhum* field in 2001. According to him, they had nested successfully in 2001. The cavity was at about 23 m, while the height of the nest tree was about 30 m. The shape of the cavity was oval-elongated and the cavity was located on a primary branch. The hole was south-facing. The nest had a flock of four birds, which were making feeding visits. One was possibly the adult male, and the other three were

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helpers. The local youth who showed me the nest had not seen Austen's Brown Hornbills before, though he was familiar with other hornbill species in the area. On a subsequent nest watch of two hours on 28 April 2002, I again observed four birds, each taking turns in feeding 2–3 food items, several times during a visit. In a second visit, about an hour later, different individuals fed the female, and chicks 8–9 times. The chicks (possibly three) had already hatched, as they could be heard calling from inside. This is the first recent recorded instance and evidence of Austen's Brown Hornbill breeding in the wild in India.

This nest tree was also active in 2003; however in the breeding season of 2004, the birds did not nest on this tree, possibly due to increased human activity and disturbance in the vicinity of the nest. One additional nest of this species was located in Miao RF (305 m) in May 2004, which was again found to be active in 2006, 2007, and in 2008. Despite intensive searches within the Haldibari–Bulbulia area, no active nest could be found. Austen's Brown Hornbill is reported to be a monogamous, territorial, and co-operative breeder. In Thailand, its breeding season is from February to April (Poonswad *et al.* 1987). From our limited observations, it appears that its breeding season in north-eastern India commences in mid-April, and is over by June–July.

Nest tree species

The nest tree species used by these two hornbill species were all large emergent trees such as *Terminalia myriocarpa*, *Ailanthus grandis* and *Altingia excelsa*. Other potential nest tree species (all

Table 3. Structural characteristics of nest sites of two hornbill species in Arunachal Pradesh

Parameters	Austen's Brown Hornbill N = 1	Rufous-necked Hornbill N = 2
Tree density (per ha) (trees 25 cm GBH)	NR	410 ± 56.56
Nest tree height (m)	30	34 ± 6
Nest tree GBH (cm)	> 400	708.5 ± 27.5
Emergence (m)	20	22.5 ± 7.5
Height of cavity from ground (m)	23	19 ± 3
Height of first branch (m)	NR	18 ± 8
Girth at cavity (cm)	NR	NR
Cavity length (cm)	NR	NR
Cavity width (cm)	NR	NR
Distance to habitation (m)	500	1500 ± 0.0
Distance to road (m)	700	6000 ± 4000
Distance to river (m)	1000	2500 ± 500
Altitude (m)	200	1100 ± 300

Photo: Aparajita Datta

A male Rufous-necked Hornbill (about 2-years old) in Namdapha National Park.

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The tail feathers of the Great Hornbill are highly valued for use in traditional headdresses by the *Wancho* in eastern Arunachal; in 1997, a single tail feather cost Rs 600/- and were hard to obtain as the Great Hornbill appears to be locally extinct or very rare in parts of Tirap district. The tail feathers are kept carefully wrapped in banana leaves, Konnu village, Upper Wancho area, November 1997.

emergents) in the area are *Dipterocarpus macrocarpus* (Hollong) and *Shorea assamica* (Mekai). *Tetrameles nudiflora* (Bhelu) is the most common nesting tree (emergent softwood species) used by hornbills in the foothill forests in western Arunachal. However, the species does not seem to occur in eastern Arunachal (some were seen in lowland forests in Assam). *T. nudiflora* was not observed in the Mehao WS (Dibang Valley district) or in Namdapha NP, even in relatively lower elevation foothill forests. In Namdapha NP, *A. excelsa*, *T. myriocarpa*, *A. grandis* and two dipterocarp species, *S. assamica* and *D. assamicus* are the common emergent species, and may be more important nest tree species for hornbills.

In all, four nests of Rufous-necked Hornbill have been recorded, two each on *T. myriocarpa* and *A. excelsa*. Overlap in nesting habitat between the Rufous-necked Hornbill and the other hornbill species is largely precluded, since it generally occurs in higher elevation forests, from 800 m to above 1500 m, though in Namdapha NP, they are also sighted at similar elevations as Great, Wreathed and Austen's Brown Hornbills. Great Hornbills are reported up to 1,200 m and though Wreathed Hornbills do occur up to 2,000 m, they are more common at lower elevations and are often seasonal visitors at higher elevation forests of Namdapha NP, Tale WS, and other community forest areas in Lower Subansiri and East Kameng districts (A. Datta, *unpubl. data*).

Table 3 lists the parameter values of some nest trees found, of the two species.

Height and size of trees as well as commonness in the habitat are important factors in nest tree selection (Datta & Rawat 2004). Studies on Asian hornbills, across many sites, have revealed that generally hornbills chose large emergent trees with cavities high up on the tree compared to randomly located trees (Kinnaird & O'Brien 2007). While in some areas, hornbill species choose a few particular softwood species, in others the main nest tree species were hardwoods (Thailand and some areas in SE Asia), and Poonswad (1995) contends that this is probably because such trees last longer and can be used by nesting hornbills for a long time, given their durability, once cavities form on them. On the other hand, it is also likely that softwood species like *T. nudiflora* that rot easily, are likely to form cavities. In southern India, hornbills did not show a preference for any particular species (Mudappa & Kannan 1997).

Proximate structural characteristics (tallness, emergence, softwood, easy cavity formation due to woodpecker / barbet activity or breakage of branch) of some tree species determine whether they are used or not. However, hornbills will ultimately select trees based on availability or commonness of a particular species that meets the structural characteristics (Datta & Rawat 2004).

My observations indicate that hornbills do nest in logged and degraded forest, though these attempts are often unsuccessful, mainly due to anthropogenic disturbances. Hornbills may be able to nest successfully even in such marginal habitats, if further degradation of, or disturbance at, the nest site (especially in the breeding season) is prevented. Given the limited availability of suitable nesting trees and the fact that hornbills nest in such marginal habitats, it is necessary to widen the scope of conservation plans for hornbills to include forests outside the existing protected area network, which forms more than 70% of the forest area of Arunachal Pradesh (Datta & Rawat 2004; Kinnaird & O'Brien 2007).

Conservation threats

Most of Arunachal Pradesh is hilly with inaccessible terrain and has low human population densities. The foothill lowland habitat, where most hornbills' nesting occurs, is threatened by habitat loss and degradation due to logging and land clearing for settlements and agriculture (Datta & Rawat 2004). Logging also has led to the creation of roads and greater accessibility, which has been followed by creation of settlements and greater incidence of human activities such as hunting and collection of fuelwood and

Heads/beaks of three species of hornbills (RNH, WH, GH) displayed in household in a Tangsa village, eastern Arunachal.

Photos: Aparajita Datta

Head of a young Rufous-necked Hornbill seen with an Apatani hunter in Tale Wildlife Sanctuary, Lower Subansiri district.

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forest products that create additional disturbance (Datta 1998). Logging was banned in 1996, though logging has restarted now in several forest divisions. However, although logging does result in reduced abundance of hornbills, several studies have shown that hornbills are able to persist in logged forests (Johns 1987, 1989; Datta 1998).

Hunting of hornbills during the breeding season is taboo in many areas, but is carried out during the winter from November to February (non-breeding season). There is a great demand for hornbill casques, meat, fat and feathers all over Arunachal, particularly among certain tribes, and these are either sold or bartered in exchange for goods (Datta 1998, 2002). Hornbills have become virtually extinct, or very rare, in many areas in eastern and central Arunachal (Datta 2002). Apart from the Rufous-necked Hornbill, which frequents forests above 800 m, all other species are largely restricted to lowland forests, the extent of which is fast declining.

Rufous-necked Hornbill: This species is among the ten globally threatened hornbills. It is believed to be extinct in Nepal and is also near extinction in Vietnam (IUCN 2009). Its current global distribution is north-eastern India (primarily in Arunachal Pradesh), Bhutan, Myanmar, northern and western Thailand, southern China, northern Laos, and Vietnam. Its presence in Cambodia is unconfirmed. The species occurs in hill evergreen forest from 600 m to 2200 m. Hunting is the primary threat to the Rufous-necked Hornbill in Arunachal Pradesh. This is the only hornbill species found at higher altitudes (>1,000–2,000 m), and is targeted extensively by hunters in the survey areas. In western Arunachal, it is hunted by *Nishi, Adi* and *Apatani*, and by the *Wancho, Tangsa, Miju Mishmi* and *Lisu* in eastern Arunachal—and these tribes have distinct names for the species (Table 4). In 1997, I recorded 32 Rufous-necked Hornbill heads on display (hunted over several years) in a single household in Pongchau, a *Wancho* village in Tirap district. 61% of all hornbill heads seen in 35 households, across 17 villages, were of the Rufous-necked Hornbill (Datta 2002).

Austen's Brown Hornbill: It is probably the most threatened of the hornbills in north-eastern India, in terms of total population in India, because of a naturally restricted and localised range. Its habitat is mostly dense evergreen forest and it is restricted to below 1,000 m. Lowland and foothill forests are the most vulnerable to logging, conversion to tea estates, settlements, and clearing for agriculture. There has been extensive habitat loss/modification (especially in upper Assam and Tirap district). Hunting of this species occurs, by the *Tangsa* and *Wancho*, but much less than that of other hornbill species because of its smaller size and lack of spectacular striking plumage. In eastern Arunachal, local knowledge of Austen's Brown Hornbill is sketchy. While some villages and tribes, *Lisu, Tangsa* and some *Wancho*, were aware of this species and knew its habits, in some nearby localities, people were not aware of it. Common names for these species are given by *Tangsa, Lisu, Khampti* and the *Miju Mishmi*. The species is most commonly sighted in Namdapha NP in low-elevation evergreen forest in the Deban–Haldibari–Bulbulia area and seen further up till the 58th mile on the Miao–Vijaynagar Road. The best place for these two hornbill species is Namdapha NP.

Photo: *Aparajita Datta*

Heads/beaks of three species of hornbills (RNH, WH, BH) displayed in household in a Tangsa village, eastern Arunachal.

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Photo: Aparajita Datta

Wreathed Hornbills at a communal roost in Pakke, western Arunachal.

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Predators of swiftlets and their nests in the Andaman & Nicobar Islands

Shirish Manchi & Ravi Sankaran

Manchi, S., & Sankaran, R., 2009. Predators of swiftlets and their nests in the Andaman & Nicobar Islands. *Indian Birds* 5 (4): 118–120.
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The Andaman and Nicobar Islands are inhabited by two species of swiftlets: the echolocating Edible-nest Swiftlet *Aerodramus fuciphagus inexpectatus* and the non-echolocating Glossy Swiftlet *Collocalia esculenta affinis*. Both taxa are endemic to the islands where they habitually nest and roost inside caves, crevices and rock shelters (Sankaran 1998, 2001; Koon & Cranbrook 2002; Naguyen *et al*. 2002). In addition, the Glossy Swiftlet also roosts and nests in man-made structures like buildings, houses, jetties and bridges. Edible-nest Swiftlets, under enormous pressure from the bird's-nest trade, have become endangered in the archipelago, having faced an estimated population decline of up to 80% in a decade (Lau & Melville 1994; Sankaran 1995, 1998, 2001). Some colonies of the Glossy Swiftlet are also exploited despite the low proportion of saliva used in their nest construction, which reduces the market value of the nests.

Nest-site selection by swiftlets is believed to be primarily based on avoidance of predation. Nest safety is likely to be influenced by the specialised search strategies of the potential predators (Cody 1983; Martin 1995). This means that documenting nest predators is of great interest in understanding the nest-site selection of the species and the benefits of their adaptations towards it.

Swiftlets are adapted to nest on walls and ceilings, both in complete darkness as well as in poorly lit zones of caves. Echolocation appears to be a strategy of the members of genus *Aerodramus* that enables them to roost and nest in the dark zones of caves, free from visually orienting predators or competitors (Fenton 1975; Medway & Pye 1977). Despite this, swiftlets are not without depredators.

Our study of these species in the Andaman and Nicobar Islands spans almost 13 years, from 1997 to 2009. During this time, we have observed several instances of predation of nests, eggs, nestlings and adult swiftlets. Across the distributional ranges of these swiftlets, their predators include both vertebrates (e.g., owls, raptors, snakes, geckoes, bats, cats, and rats), and invertebrates (e.g., cockroaches, lice, flies, giant crickets, and centipedes), (Sankaran 1998; Koon & Cranbrook 2002; Naguyen *et al*. 2002). In our study, with the species conformed as predators of swiftlets, some potential predators were also observed inside caves. Our observations on the potential predator species and the species conformed as predators of swiftlets and their nests are summarised in Table 1. We could not confirm whether the potential predators indeed depredated nests of adult swiftlets.

Table 1. Predators of swiftlets and their nests in the Andaman & Nicobar Islands

Species	Description
Brown-Hawk Owl *Ninox scutulata obscura*	Individuals were observed hunting both species of swiftlets in the cave openings of Chalis-ek and Interview islands, in North & Middle Andaman, while the birds entered or exited from the caves at dusk and dawn, during May and June of each year from 2001 to 2008. In May 2005 an individual was also seen roosting just bellow the Edible-nest Swiftlet colony on the man-made scaffolding inside the cave at Interview Island.
*Besra *Accipiter virgatus*	According to the nest collectors, Besras were recorded hunting swiftlets near the cave openings and also in the dim-lit zones inside the cave in North & Middle Andaman and Baratang Island, round the year.
Large-billed Crow *Corvus macrorhynchos*	In the morning of 19 March 2007, a Large-billed Crow, while in flight, was observed preying on the breeding colony of Glossy Swiftlets, under Panighat bridge in North & Middle Andaman Island.
*Red-tailed trinket snake *Gonyosoma oxycephalum*	A known bird predator (Whitaker & Captain 2004), this species was found near cave openings and inside caves, close to the swiftlet breeding colonies, at Chalis-ek North Andaman and Interview Island, during the breeding season of the swiftlets in February 2002, May 2005, May 2007 and January 2009 (Fig. 1). We did not directly observe predation.
*Reticulated python *Python reticulatus*	A common visitor to the caves, it is known to prey on swiftlets in other regions (Koon & Cranbrook 2002), but we did not observe predation. During the survey in 1997 an individual was encountered in a cave on Great Nicobar.
*King cobra *Ophiophagus hannah*	The species was observed resting in the crevice inside the cave at Bartang Island. We believe that King Cobra can be a potential predator of the swiftlets or the bats inside the cave.
*Vipers *Trimeresurus* (unidentified sp.)	During the survey in 1997, inside the caves at Pambuka and Pagget islands, vipers were seen resting near the swiftlet colony, most probably for hunting the adults approaching nests and also flying from the nests. These species were never observed predating on the swiftlets or their nests.

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Table 1. Predators of swiftlets and their nests in the Andaman & Nicobar Islands

Species	Description
*Sea snake (unidentified sp.)	During the survey in 1997, sea snakes were seen resting under the swiftlet colony in the coastal caves in Nicobar Islands. They were presumed to be predating on the fallen chicks or eggs. Predation was never observed.
*Lizards (unidentified spp.)	Geckos from south-eastern Asia were recorded predating on swiftlets eggs in houses. In the cave at Interview Island we recorded a lizard moving in the Edible-nest Swiftlet colony. We did not observe any type of predation of the swiftlets by the lizard.
Crabs (unidentified spp.)	Different species of crabs were found predating on fallen swiftlet chicks and also scavenging on dead ones. During the survey in 1997 crabs were observed inside most of the coastal caves in Andaman and Nicobar Islands. Under Mayabunder jetty, in February 2007, an individual was observed predating on a Glossy Swiftlet chick that had fallen from the nest.
Spider (Order: Arachinida)	At Great Nicobar a Glossy Swiftlet was caught in a spider's web; the spider took almost three days to finish sucking it dry (Manish Chandi, Per. comm.; Fig. 2). In another instance, during June 2006, an adult Edible-nest Swiftlet was observed caught in a spider's web within 200 m of the nearest cave on Interview Island.
Ants (Order: Hymenoptera)	Red ants are one of the major predators of eggs and chicks inside caves. In almost all the caves on Interview Island and Chalis-ek ants were seen attacking newly hatched chicks (Fig. 3) and also feeding on the material inside the eggs by making a hole in the egg.
Cockroaches (unidentified spp.)	Not a conventional predator, cockroaches inside caves reduced the breeding success of Edible-nest Swiftlets by feeding on their nests. In the several caves on Interview Island this incidence was observed. There is a cave on Interview Island called Cockroach cave because of their high number and rate of nest predation.
*Crickets (unidentified spp.)	Giant crickets in south-eastern Asia are known predators of swiftlets. Crickets were also encountered in the caves at Baratang Islands during the survey in 2007, but were never observed predating on the swiftlets.
Domestic cat	During cyclonic weather of April, May and June in 2004, 2005, and 2006, in front of the police station at Mayabunder, North and Middle Andaman, when Glossy Swiftlets foraged close to the tar road, a domestic cat was observed hunting them by hitting them with its forelimb.
*Rats (unidentified spp.)	Rats are present in most caves of the Andaman and Nicobar Islands. Rats were recorded predating on swiftlets in south-eastern Asian countries but we never observed them predating on swiftlets. Rats were observed feeding on the edible nests fallen on the ground, in the cave at Interview Island.

Note: * Potential predators of the swiftlets.

Predation can affect the population of the colonial breeders like Edible-nest Swiftlet, as it was proved in one of the caves under continuous observation. The population of the Edible-nest Swiftlet was recorded using the roost count method (Medway 1969). Predators like Brown-Hawk Owl *Ninox scutulata obscura* and the Red-tailed trinket snake *Gonyosoma oxycephalum* were observed predating on adult individuals of both species of swiftlets inside the cave on Interview Island, using a man-made wooden scaffolding set up to study the breeding biology of the species. Despite its successful breeding seasons the population of the Edible-nest Swiftlets declined between 2000 and 2004. But after the removal of the scaffolding, used by predators to launch an attack inside the cave, the population in 2005 started rising again (Fig. 1).

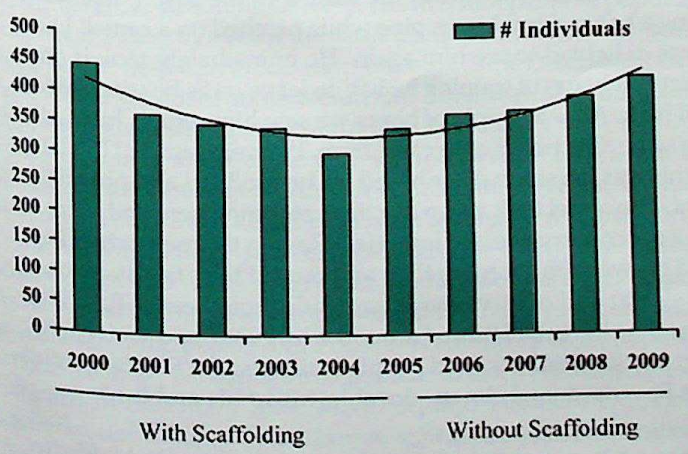

Fig. 1. Population of the Edible-nest Swiftlets in the cave at Interview Island Wildlife Sanctuary, during the existence, and after removal, of the man-made scaffolding causing heavy predation.

Photo: Shirish Manchi

Fig. 1. Red-tailed trinket snake *Gonyosoma oxycephalum* resting just below the swiftlet colony in the cave at Interview Island.

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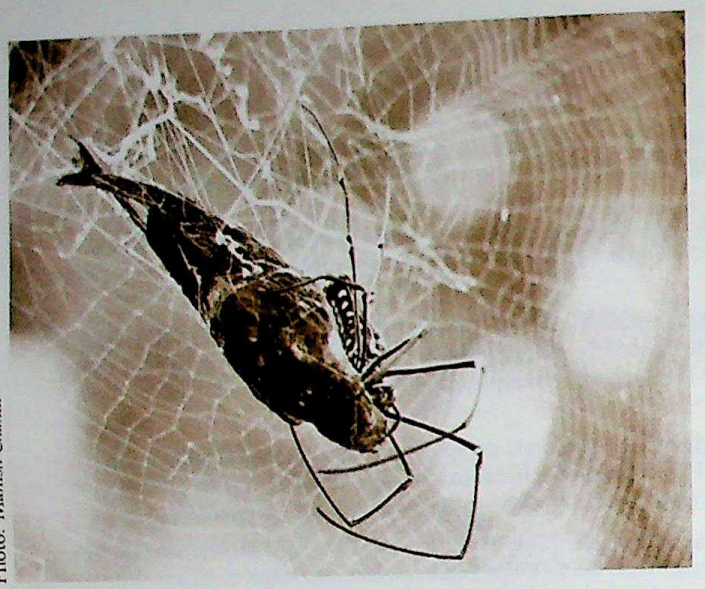

Photo: Manish Chandi

Glossy Swiftlet *Collocalia esculenta* caught in the spider web at Great Nicobar.

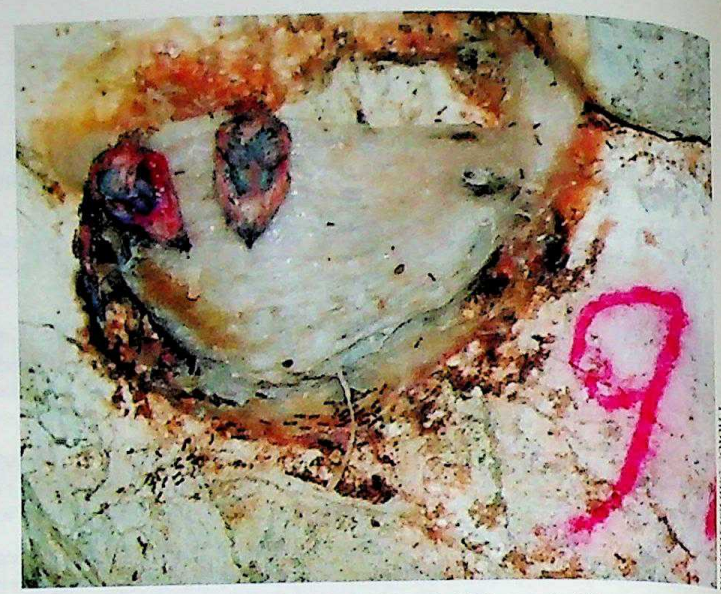

Photo: Shirish Manchi

Red ant attack on the freshly hatched chicks of Edible-nest Swiftlet *Aerodramus fuciphagus* in the cave at Interview Island.

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— Ravi and the camel —

This was in January 1999 when I went to Jaisalmer with a friend to visit another friend. In the middle of the desert, like some lunatic mirage, I saw this man with a luxuriant moustache wearing a hat and smoking a pipe while perched on a camel! I had met Ravi several times before and like anyone else would be, was delighted to see him again. He immediately took it onto himself to teach me and Swapna the art of riding a camel. After several hours of training he had to leave us as he was invited for lunch at a village some 3km away. He decided to go on camel back. After a couple of hours we saw him return, hurriedly (the camel was racing back) and get into a jeep and speed off in the same direction that he came from. We were puzzled but later learnt that it was the camel who was in a hurry and not him and this was the story: After he left us, he prodded and poked the camel into taking him to the village and the beast would not relent. The camel took a step at a time, stopping here and there to eat a morsel of some vegetation, with long halts to simply observe the countryside. An impatient Ravi in the meanwhile kept prodding and managed to get the camel to move a bit at a time. This went on for more than an hour till they finally reached the boundary of the village and the camel decided to move even slower and observe the countryside more keenly. Ravi who was very hungry and at the end of his patience prodded again - this time the camel turned around with gusto, and with energy never seen in a camel before, raced back 3 km with a stunned Ravi stuck to his back (and the pipe still stuck in Ravi's mouth)! A scene straight out of Tintin! But this is what I always remember Ravi as- a total clown – lovable, full of life and fun!

– Shomita Mukherjee
on Facebook, January 20, 2009

(Post No. 3: <http://www.facebook.com/topic.php?uid=59602514000&topic=6400> downloaded on 25 September 2009)

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Ravi Sankaran's ornithological contribution

Asad R. Rahmani

Rahmani, A. R., 2009. Ravi Sankaran's ornithological contribution. *Indian Birds* 5 (4): 121–125.
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It is very difficult to write about a person who leaves this world at the prime of his career. We can only foresee his future contribution to science from the published work that he left behind, and what he would have done if he had had a full life. Ravi Sankaran's sudden death on 17 January 2009, at a young age of 46, has left a large vacuum in the Indian ornithological world. As a person who was associated with him since the start of his career in March 1985, and having spoken to him about his 'grand plan' for the Salim Ali Centre for Ornithology & Natural History (SACON), where he was the Director, on 16 January 2009, I feel privileged to write about Ravi's contribution to Indian ornithology.

Ravi joined the Bombay Natural History Society (BNHS) on 25 March 1985, and commenced working with me in the Endangered Species Project—I was in-charge of the fieldwork on the Great Indian Bustard *Ardeotis nigriceps* and florican (Otididae) species. On 1 April 1985 we went to Karera Bustard Sanctuary in Madhya Pradesh, where we had a field station, and after that we went for a one-month survey of the Bengal Florican *Houbaropsis bengalensis* in the Uttar Pradesh *terai* and the Assam valley. We saw our first Bengal Florican on 14 April 1985 in Kowaghati grassland of the Sathiana range, and he saw his first Lesser Florican *Sypheotides indica*, with me, in July 1985, in Sailana Florican Sanctuary in Ratlam district. These two species 'hooked' him for the rest of his life. Although after joining SACON in 1992 he studied many other species, particularly in the Andaman & Nicobar Islands, his first 'love' was floricans. Whenever we would meet, we would talk of them.

From 1985 to 1990, we carried out extensive surveys in Rajasthan, Madhya Pradesh, Uttar Pradesh, Gujarat, and Maharashtra, in search of Great Indian Bustard and Lesser Florican. His name first appeared in our report *The Bengal Florican: Status and ecology, Annual Report 1986-87*, (Rahmani, A. R, Narayan, G., Sankaran, R. Rosalind, L. 1988). His first independent popular article was *Sitting by a desert waterhole* (Sankaran 1986), which was based on our field visit to Sudasari enclosure in the Desert National Park where we spent some wonderful days, watching bustards and other birds, sitting in a cramped 3x3 m hide.

Ravi was a keen observer, a good writer and a good photographer. Besides working for his PhD thesis on the Bengal Florican in Dudwa and Lesser Florican in Sailana, he was interested in all natural history subjects. He told me many interesting observations and the conservation problems of his study areas. As he was still doing fieldwork, we did not have sufficient data to write scientific papers, but I encouraged him to write popular articles. In 1987, he wrote three popular articles on bustard and floricans in *Sanctuary Asia*, *Frontline*, and *Hornbill*. Our first scientific publication, albeit a short note, was about an observation made in the Sam enclosure in the Desert National Park, when we saw a Large Grey Shrike *Lanius meridionalis* methodically removing ticks from a camel (Sankaran & Rahmani 1987). Our next short note was on the unusual nesting of the Purple Sunbird *Cinnyris asiatica* (Rahmani & Sankaran 1990). Ravi was also co-author of a short note on the Black Drongo *Dicrurus macrocercus* eating a bird (D'Silva *et al.* 1990). This observation was made in Karera Bustard Sanctuary in 1988. Through these initial short notes, Ravi learnt the value of good observations, and publishing them in journals and magazines.

Under the Florican Project, we wrote many annual reports from 1987 to 1989, and the final report in 1990—but as these reports are grey literature, I will not mention them in detail (Please see Pittie 2009, for a list of Ravi's publications). The first major paper of this project, with Ravi as its first author, was published in *JBNHS* (Sankaran *et al.* 1992). That year we also published a status paper on the Bengal Florican (Rahmani *et al.* 1992). These two papers, and also his popular articles, laid the foundation for Ravi's ornithological work for the next 20 years. During the Florican Project, while Ravi, Goutam, and Lima did most of the fieldwork, I went through the published literature on these two rare birds, and pinpointed areas that required surveys. Through our joint efforts, we highlighted the deteriorating status of these birds, and also suggested conservation initiatives that were required to protect them. To gather data on the status of the Lesser Florican, Ravi conducted extensive surveys in western Madhya Pradesh, eastern Rajasthan, and Gujarat, visiting *vidis* or *bheeds*, as the grasslands are called in the local language, interacting with local people, and officials. We were helped by the earlier survey work of Paul Goriup and Z. J. Karpowicz (1985). However, Ravi found many more *bheeds* in Madhya Pradesh and Rajasthan where the Lesser Florican is found in the monsoon. He also established *Florican Watch*, involving local people. Despite his extremely busy fieldwork schedule, and distance (by 1992 Ravi had shifted to Coimbatore), Ravi made it a point to visit Lesser Florican areas every monsoon. If some people now protect floricans, it is only due to Ravi's untiring work.

In 1991, Ravi was awarded a PhD for his thesis on "Some aspects of the breeding behaviour of the Lesser Florican *Sypheitides indica* (J. F.Miller) and the Bengal Florican *Houbaropsis bengalensis* (Gmelin)", by Mumbai University. This was the culmination of his work under the Endangered Species Project. Although he did not publish many major papers from his thesis, some short notes came out in *JBNHS* on the breeding behaviour of the two florican species (Sankaran 1996a, 1996b). His paper on the relation between bustard body size and display type (Sankaran 1997), is a very interesting piece of work wherein Ravi shows a direct correlation between body size and display type in the bustard family. "The small bustards have aerial displays, with the smallest of these having a jumping display, those species with increased body size having flight displays, and beyond this body size, all bustards have ground displays". Ravi's analysis showed that the Bengal Florican and the Black-bellied Bustard *Eupodotis melanogaster* (of Africa) are at the size threshold beyond which all bustard species have ground displays. In his other

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noteworthy paper (Sankaran 1994) Ravi re-analysed the ringing and recovery data of Dharmakumarsinhji (1950), and based on his own data proved that male Lesser Floricans do not return to the same territories year after year—their arrival depends on the rainfall pattern of the area and, they show disperse lek type with small male territories while females have large range. He did not find site fidelity from year to year, but strong site fidelity within a season. This behaviour should be expected from a species that moves for breeding to the semi-arid grasslands of north-western India, where the rainfall pattern varies from year to year—so if a male florican has a strong site-fidelity for display, in some years it may land up in the area with very little rainfall (and females). Therefore it has to shift breeding areas every year and selects areas with good over-all rainfall. However, the Bengal Florican, which lives in more stable grasslands of the *terai* and the Brahmaputra plains, with regular rainfall, shows strong site fidelity.

From 1993, Ravi's main work shifted to Andaman & Nicobar Islands, where he subsequently spent 15 years and made a long-lasting impact on its people and also on Andaman ornithology. His initial studies were in collaboration with Dr Lalitha Vijayan, as principal investigator, but soon he was the principal investigator of other projects. Lalitha and Ravi worked on a major project funded by the Ministry of Environment and Forests titled, '*A study on the ecology, status and conservation perspectives of certain rare endemic avifauna of the Andaman and Nicobar Islands*' (2000). Twenty species of birds are considered 'rare' on the Andaman Islands, of which the SACON team intensively studied the Andaman Teal *Anas albogularis*, now considered a full species by Rasmussen & Anderton (2005), Andaman Banded Crake *Rallina canningi*, Narcondam Hornbill *Aceros narcondami*, and Nicobar Megapode *Megapodius nicobariensis*.

Before Ravi's work on the Narcondam Hornbill, there were six visits by various ornithologists, mainly to collect specimen of this species or to study its ecology. Among his various studies, I consider his work on the Narcondam Hornbill unique, mainly due to its wonderful interpretation of field results. Unfortunately, this study has not been published in any peer-reviewed journal, although the results are given in the final report of the project from where I quote some highlights. The following description is also based on discussions with Ravi while I was collecting information for my IBA book.

The Narcondam Hornbill shows the greatest degree of endemicity of any of India's avifauna, being confined to only 7.5 km² of volcanic island. Its population varies between 330–360 individuals, of which 30–45 hornbills the policemen posted there, poach every year. The total breeding population is between 68–85 pairs. On this volcanic island (700 m asl), nearly 60% of the nests are found below 100 m, and 29% between 100–200 m—and no nest was located above 400 m. Therefore, despite the rugged terrain, most of the nesting sites are accessible to people. The age of the hornbills can be assessed by counting the rings on their casques. Its not always easy to see the rings, but nevertheless a valuable tool to study the age structure of hornbills. A bird with a single ring was considered to be a year old, two rings as two years, and so on. Ravi studied 17 nests, and found that barring three, in all the nests, males were older than the females. Narcondam Hornbills mature at about four years of age, and start forming pairs, and nest when they are about five years old. That males were older than females could indicate that either the latter are short lived compared to males or they prefer older mates. Another very interesting observation, made by Ravi, was on the age-class distribution of Narcondam Hornbill at different altitudes. He found that most of the younger birds, non-breeders mainly, were found above 300 m msl. This was consistent with the presence of all nests below 300 m msl, and could be indicative of age segregation to reduce pressure on resources.

The most interesting result of this study, which Ravi discussed with me in great detail, is the impact of goats introduced in 1974 or 1976 on the tiny Narcondam Island. As Myanmar was claiming the Narcondam Island as its territory—it is closer to Myanmar than to India—the Indian Government established a police post on Narcondam in 1969, and brought in policemen from Uttar Pradesh. Being from the mainland, they were not used to seafood, though abundant all around in the form of fish, crabs, lobster, etc. So, to provide fresh meat, goats were in brought in 1976. Over the years, the goat numbers crossed over 400, forming a sizable feral population. In the late 1980s and early 1990s, on the recommendations of the Ministry of Environment and Forests, the A&N administration removed some goats to satisfy the MoEF directive. During his study in 1998, Ravi found 135 –150 goats in the police camp of 50 acres, and estimated about 200 feral animals. He was shocked to notice a complete lack of vegetative regeneration, "there is virtually no herb and shrub layer, and more importantly no saplings of trees". As the island is volcanic in origin, with very high rainfall, the roots of trees hold the soil and boulders together. Hornbills nest in old trees with hollows and holes. Due to heavy rains and storms, many old trees fall every year. Once the canopy opens, new trees come up. However, if regeneration were not taking place due to domestic and feral goats, there would not be any replacement of dead and fallen trees. During his study, Ravi found that there was no dearth of nesting holes, but if regeneration of new trees does not take place and if the population of goats is not curtailed, in another 7–8 decades, there would not be many old trees left to provide nesting sites for the Narcondam Hornbill. Ravi also found that the police outpost, including houses, plantation, and kitchen gardens, already occupies about 50 acres. About 12 large trees are felled every year for fuel. All this has a great ecological impact on the long-term survival of this unique species found nowhere else in the world.

Another remarkable study for which the ornithological fraternity will remember Ravi is that of the Nicobar Megapode. Out of the 22 species of megapodes in the world, one species is found in the Nicobar group of islands. Megapodes are unique among birds as they incubate their eggs in mounds of rotting leaves, or geothermally (by the sun) heated burrows. Various species of megapodes are distributed from Nicobar Island to Australia, New Guinea, Indonesia, the Philippines, and numerous islands of the Pacific. Many species of megapodes have been studied, but detailed studies were not done on the Nicobar Megapode. This gap was ably filled by Ravi Sankaran's six-years study, 1992–1994, and 2005–2008, of the species. Ravi, and his student, K. Sivakumar, now a faculty of the Wildlife Institute of India (WII), lived in extremely primitive conditions on Great Nicobar Island to study the ecology and behaviour of this elusive bird. They surveyed 16 islands, ranging from 213 km² to 1.2 km². Ravi walked the coastline of all the 16 islands, covering nearly 687 km, and intensively surveyed 65 transects of 114 km. If you have such an intensive study, the results are expected to be good. It is a pleasure to read the results of this study in their final report (Vijayan & Sankaran 2000). The results of this study were also published in good papers (Sankaran 1995; Sivakumar & Sankaran 2003, 2005a–b) Preliminary results where published in *Zoologische Verhandelingen, Leiden* (Sankaran & Sivakumar 1999). Ravi also guided Sivakumar for his PhD on Nicobar Megapode (Sivakumar 2000). They have written many technical reports, not easily available to people (Pittie 2009). Sivakumar and Ravi read a paper "*Incubation mounds and mound use patterns in the Nicobar*

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Megapode..." at the First Pan Asian Ornithological Congress, 1996, the proceedings of which were never published.

After the tsunami in 2004, Ravi conducted a survey and found a total devastation of Megapodes nesting mounds on many small islands. However, he was also hopeful that if the birds were left alone, they would return and recreate the mounds. Ravi was very worried about the amount of funds poured into Andaman & Nicobar Islands in the name of tsunami relief, and the type of corrupt people who generally follow these funds. On some islands, more ecological damage was done in the name of tsunami relief than the tsunami itself!

Ravi's study on the Edible-nest swiftlet is another masterpiece. It involved basic biological work in extremely trying field conditions, understanding the conservation problems, realising the impossibility of physically protecting the nest caves on discrete islands with the limited capacity of the forest department, and knowing the potential of benefiting the local people by sustainably harvesting nests of this species. Although I have not seen nesting colonies of Edible-nest Swiftlet, I have been following Ravi and his student's work for the last decade or more. After Ravi explained to me how sustainable harvesting of nests of this species would help in its protection, I fully backed him and SACON in their request to the Government of India to de-list it from Schedule I to Schedule IV to enable the sustainable harvesting and export of its nests. Perhaps the last report submitted by Ravi, along with his student, Manchi Shirish Sheshnarayan, was to the Government of India and the Andaman & Nicobar state Government (Sankaran & Sheshnarayan 2008).

I think a little background on this issue would help the readers fully appreciate Ravi Sankaran's brilliant approach to conservation of the Edible-nest Swiftlet. The following description is based on the final report *A Study on the Ecology, Status and Conservation Perspectives of Certain Rare Endemic Avifauna of the Andaman and Nicobar Islands*' (Vijayan & Sankaran 2000) his recent papers, his letters to the Government of India, and my discussion with Ravi, and his student Manchi Shirish Sheshnarayan, who has submitted a thesis on Edible-nest and Glossy swiftlets (sadly after Ravi's demise).

Four species of swiftlets are found in India: the Himalayan Swiftlet *Aerodramus brevirostris* in the Himalayas and north-eastern India; the Indian Edible-nest Swiftlet *Aerodramus unicolor*, found in the Western Ghats, Sri Lanka and coastal islands; the Edible-nest Swiftlet *Aerodramus fuciphagus*, and the Glossy or White-bellied Swiftlet *Collacalia esculenta*, the last two found only on the Andaman & Nicobar Islands in India, but widespread in South-east Asia. None of the species is globally threatened, although some populations are under threat due to unsustainable harvests of their nests by poachers.

The four species of swiftlets make nests using their saliva and feathers, vegetable matter, small leaves, and twigs—collected in flight. The Edible-nest Swiftlet is unique as it makes a nest of pure saliva, with none or very little impurity. In the 16th century the Chinese discovered the cuisine value of the nests and since then the species has been over-exploited all over its range. Other species are also exploited but their nests are of inferior quality, as they have impurities like feathers, feces, leaves, etc. Harvesting of nests of Edible-nest Swiftlets started in the 18th century in Andaman & Nicobar Islands where it was mainly an unregulated activity (Sankaran 1998). The Indian Edible-nest Swiftlet nests in the rocky caves and grottos of the Western Ghats and coastal islands such as Vengurla Rocks off the Malvan coast in Maharashtra, and Pigeon Islands off the coast of North Kanara (Ali & Ripley 1987). Its nest is full of 'impurities' such as feathers, moss, lichens, but nevertheless it is exploited in some areas. Due to over-exploitation of nests of this species in the Vengurla Rocks and resultant protests by activists, all the species of swiftlets were brought under Schedule I of the Wildlife Protection Act, nearly ten years ago.

During his study of the avifauna of the Andaman & Nicobar Islands, Ravi Sankaran became interested in the fate of Edible-nest Swiftlet. In his 1997 survey Ravi found 6,631 breeding pairs in 291 caves (Sankaran 1998)—all the colonies were over-exploited, and nests collected irrespective of whether they contained eggs or chicks. At Port Blair, a kilogram of nests (70–125 nests) fetches between Rs 15,000 and Rs 20,000, sometimes more. He also found that it is extremely difficult to protect nesting colonies on remote islands and in remote caves—with the latter's approaches sometimes known only to poachers. He found population declines of the Edible-nest Swiftlet as evidenced from diminishing nest yields. Ravi saw an opportunity in this dire situation—instead of trying to curtail nest collection, why not regulate it and let the local people earn some additional income? Nests can be harvested after the chicks have fledged and flown away. This involves no killing and allows nests to be harvested year after year, as birds build new nests every year. In order to give scientific support to his plan, first a proper study had to be done on the Edible-nest Swiftlet and also the Glossy Swiftlet. With the collaboration of the Department of Environment and Forests, Andaman & Nicobar Islands, SACON started a study in 2001 in 29 caves. Intensive data collection took place from 2004 to 2007.

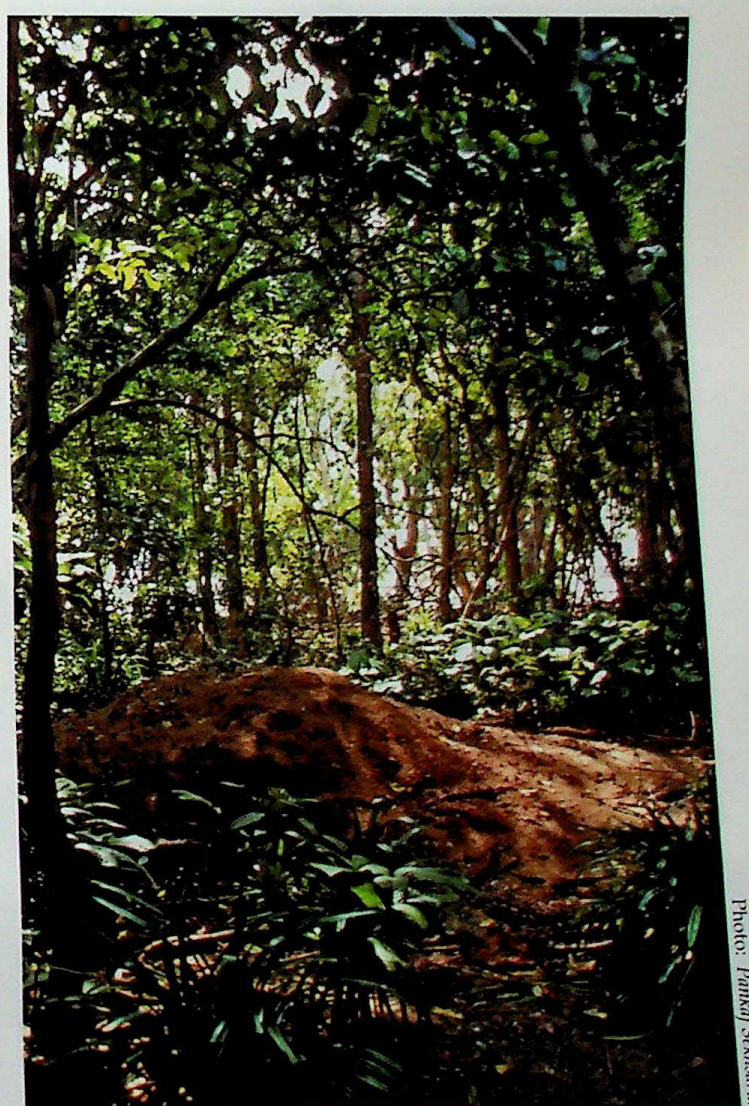

Photo: *Pankaj Sekhsaria*

A megapode nest in the coastal forests Great Nicobar Island (2002).

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Edible-nest Swiftlets breed and roost in dark caves as they navigate in darkness by echolocation. However the Glossy Swiftlet does not echolocate and builds nests near cave openings and even in old buildings, and under bridges. In order to engineer better *ex-situ* swiftlet houses with a view to sustainable harvesting, Ravi and his student studied nest site characteristics in 29 caves—rock texture, rock contour, inclination of walls, micro-meteorological parameters (temperature and humidity), nest orientation, and predatory pressures.

As the two species nest almost at the same time, and also feed on dipterous, hymenopterous, and hemipterous insects, caught in the air, eggs of Edible-nest Swiftlets can be transferred to Glossy Swiftlet nests to increase the population of the former, and also to develop new nesting colonies for management and sustainable harvest. Both the species raise multiple-broods, sometimes nesting four times in a year, so it was also necessary to find out which is the best time to harvest the abandoned nests without unnecessarily disturbing the birds.

During the last six to seven years Ravi had developed a team of local people who were ready to start a cooperative society, with strict rules and regulations, for the sustainable harvesting of Edible-nest Swiftlet nests. They had even collected about 28 kg of nests. But the problem was that the nests could not be exported out of the country, as the species was in Schedule I of The Indian Wildlife (Protection) Act, 1972. We both had numerous meetings in the Ministry of Environment and Forests, Government of India, to remove Edible-nest Swiftlet from Schedule I. Finally, the Standing Committee of the National Board for Wildlife took this bold decision on 17 July 2009—sadly after Ravi's death. However, Ravi has left a very robust plan with the Department of Environment and Forests, Andaman & Nicobar Islands, which, if properly implemented, will be first of its kind, with an out-of-box approach to conservation.

According to this plan, local people will be involved in the protection of nesting caves, and nests will be harvested only after the breeding season is over. Nest harvest will be strictly regulated through cooperative societies (on different islands or groups of islands), and exported under government supervision. New Edible-nest Swiftlet colonies will be developed by foster parenting, i.e., replacing eggs of Glossy Swiftlets with eggs of Edible-nest Swiftlets, and wherever necessary, structural changes will be made in houses to provide suitable substratum for nesting and also to maintain the micro-climate of the artificial nesting colonies (light, humidity, and temperature). The scientific background for doing this is already available through the studies done by Ravi and his student. Fortunately, the administrative support of the Andaman & Nicobar government is also available.

If the population of Edible-nest Swiftlet increases, and local people benefit from benign harvest of its nests, we have only Ravi Sankaran to thank for his foresight, planning, and scientific approach in solving this conservation problem. In the Indian conservation scenario, full of bleeding heart animal right activists, we have to listen to people like Ravi Sankaran for their ecological wisdom, and species-specific conservation planning.

Ravi was a good teacher, always looking for quality students, whom he found in Sivakumar and Manchi Shirish Sheshnarayan. They have not disappointed him. Ravi has also inspired many students—some willing to continue his work on the Lesser Florican, Nicobar Megapode, Narcondam Hornbill, and Edible-nest Swiftlet.

Modern, objective, and scientific thinking were Ravi Sankaran's forte. In many conservation approaches he was ahead of his time. I have seen his growth from being a pure field biologist interested only in the ecology, behaviour, and conservation of a species, into a practical conservationist—where involvement of people, particularly local communities, became a defining paradigm for him. Besides his approach to conservation of Edible-nest Swiftlet, lately, he was also involved in a major project *Strengthening community conservation efforts in Nagaland: a programme to impart technical support on biodiversity conservation and livelihood options to communities*. It is a collaborative programme between the Nagaland Empowerment of People through Economic Development, Kohima (NEPED), and SACON, funded by Sir Dorabji Tata Trust, Mumbai. He was executing this project in collaboration with some other organisations such as Kalpavriksh, Pune; Ecosystems India, Guwahati; Aranayak, Assam; ATREE, Bangalore; and Nature Conservation Foundation, Mysore. The aim of the project is "To develop mechanisms by which the existing community conservation efforts in Nagaland are strengthened, expanded and lead to livelihood benefits since some local communities have by their own volition set aside areas within their village lands for the preservation of wildlife. The approach will be that of training a core group of individuals from different tribes who will facilitate a resource group with expertise in biodiversity conservation and livelihood options." Fortunately, SACON has taken responsibility to complete this project.

In a research career of 23 years, Ravi wrote 21 full papers, 12 short notes in peer-reviewed journals, nine scientific articles in magazines and 37 project reports. Most of these reports are

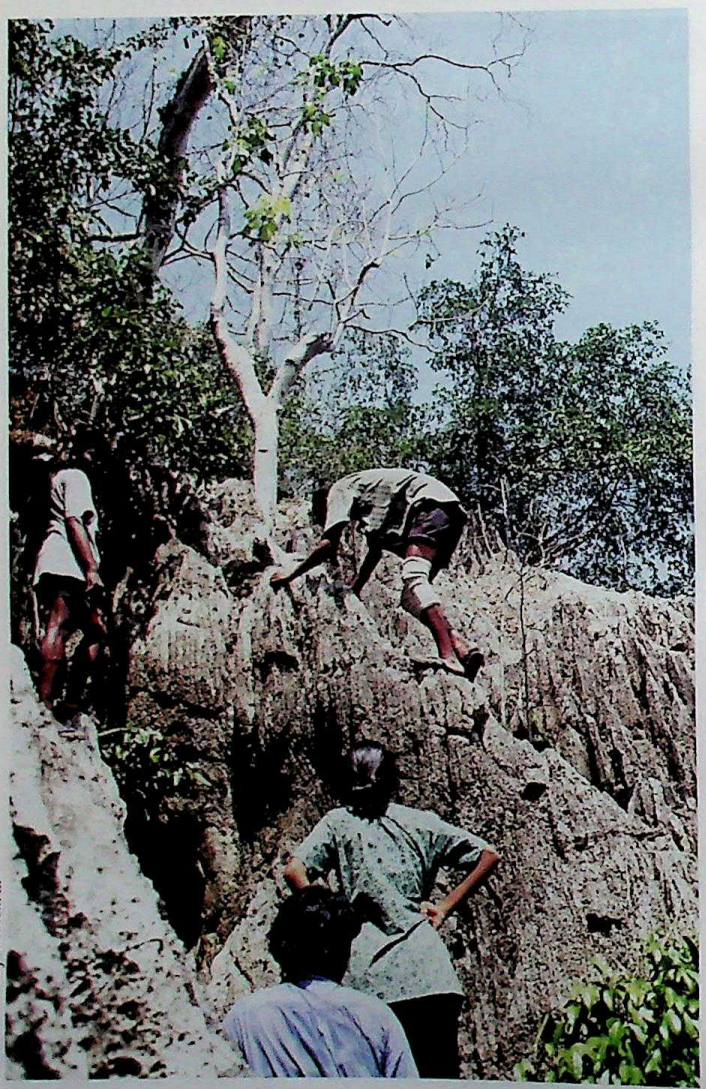

Photo: *Pankaj Sekhsaria*

Climbing the rocky Challis Ek complex. Ravi (with strapped knees) and his wife Deepa (hands on hips)

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available in the libraries of BNHS and SACON. A bibliography was published by Pittie (2009).

Long walks in the rain in Sailana, sitting for an entire day in cramped and damp hides to watch the display of the Lesser Florican, perching on a 20 m *machan* in Sathiana grassland in Dudwa to study the behaviour of the Bengal Florican, all gave Ravi the initial strength to become one of the finest field biologists of India. His inquisitiveness to learn, incisive questioning ability, writing and speaking skills further added to his character, including his signature pipe!

I think the best tribute to Ravi Sankaran by us would be to see that the Lesser Florican continues to display in the grassland of Sailana, chicks come out from the nest mounds of Nicobar Megapodes, the goats of Narcondam Island are totally removed, a nest harvesting cooperative systems is put in place to benefit local people and the Edible-nest Swiftlet, and people of Nagaland manage more biodiversity areas for the benefit of wildlife and their welfare.

Acknowledgements

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Photo: *Pankaj Sekhsaria*

Ravi Sankaran

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Edible-nest Swiftlet *Collocalia fuciphaga*: extinction by protection

Pankaj Sekhsaria

Sekhsaria, P. 2009. Edible-nest Swiftlet *Collocalia fuciphaga*: extinction by protection. *Indian Birds* 5 (4): 126–127.
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Prologue

This piece was written sometime in 2004, and included detailed inputs from discussions the author had with Dr Ravi Sankaran. Tragically, Dr Sankaran passed away in January 2009, after suffering a massive heart attack.

It was reported on 18 August 2009 that Dr Sankaran's efforts to de-list the Edible-nest Swiftlet had finally succeeded, raising hopes that the project he had initiated for the conservation for the birds in the Islands would have a fair chance of being implemented. ['Selling bird's nest soup to save this bird: there's a change in law.' Tuesday, Aug 18, 2009 at 0354 hrs New Delhi: http://www.indianexpress.com/news/selling-birds-nest-soup-to-save-this-bird-theres-a-change-in-law/503342/0.]

Introduction

The path to hell, for humans, it is said, is paved with good intentions. For a little bird in the Andaman & Nicobar Islands, the Edible-nest Swiftlet *Collacalia fuciphaga*, the path to extinction, it would seem, too has being paved with similar good intentions. Being listed in Schedule I of the Indian Wildlife (Protection) Act, 1972 (WLPA), is the ultimate recognition of the endangered status of any creature in India

A nest of saliva

It also means that the highest degree of protection will be accorded to the species, and this is exactly what has happened in the case of the Edible-nest Swiftlet too. Herein lies the ultimate paradox, and probably the seeds of an unfolding tragedy. At the crux of the matter is the nest of the bird that is made entirely of its own saliva. The final product is a beautiful white 'half-cup', roughly six centimeters across with an average weight of 10 gm.

Photo: *Pankaj Sekhsaria*

Edible-nest Swiftlet's saliva nest.

This is indeed a fascinating biological quirk, but one for which the bird has had to pay a heavy price. Since the 16th century, when the nest of the bird is reported to have become an important part of Chinese cuisine and pharmacy, its been heavily exploited across its range. While there is little modern scientific evaluation or validation of the efficacy or efficiency of the nest, consumption has been immense. A TRAFFIC International publication of 1994 estimated that about nine million nests, weighing nearly 76 tons, were being imported into China annually. Not surprisingly then, the wholly edible white nest was and continues to be one of the world's most expensive animal products, pegged sometime back at US $ 2,620-4,060 per kg in retail markets in the South-east Asian countries.

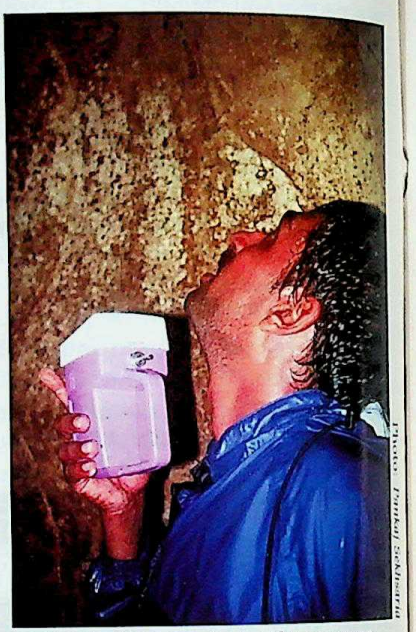

Photo: *Pankaj Sekhsaria*

Ravi inside a cave during the monsoon.

It is well known that a part of the international trade was being fed by the extraction of nests that takes place from the Andaman & Nicobar Islands, but authentic information only started coming in 1995, when the first studies were initiated by ornithologist, Dr. Ravi Sankaran, of the Salim Ali Centre for Ornithology and Natural History (SACON). He initiated a laborious and painstaking process of locating the nesting sites and enumerating the nests and birds. Detailed surveys were conducted on the islands between March 1995 and early 1997, where he visited a total of 385 caves (325 in the Andamans). The outcome was two pioneering reports. The first published in 1995 dealt with the Nicobars and the second, in 1998, presented a complete picture of the situation in the entire archipelago.

A threatened population

Sankaran's studies estimated that the total breeding population on the islands was about 6,700 breeding pairs. He reported that at least 94% of the caves were being exploited for the bird's nest, and that less than 1% of the breeding population was being allowed to successfully fledge as the nests were being harvested for the market

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before the nesting could be completed. Sankaran estimated that the Edible-nest Swiftlet had experienced a whopping 80% decline in its population, placing it in the critically threatened category (IUCN criteria A1c). This was primarily due to indiscriminate and unrestricted nest collection from the wild, leading him to the further conclusion that if this was not dealt with urgently the bird would soon be extinct in the Andaman & Nicobar Islands.

He initially advocated strict protection, but changed his stand when he realised that protection, in the conventional sense, would not work. He also learnt of the ingenious house ranching methods developed by the Indonesians for managing swiftlets.

House ranching

It was estimated that nearly 65,000 kg of nests were being produced in Indonesia annually, from colonies of the Edible-nest Swiftlet that reside within human habitation: a total of 5.5 million birds and their nests, in houses and rooms of human habitations, optimally managed by humans. "Thus, while swiftlet populations in caves will continue to decline, or become extinct, due to collection pressures," Sankaran concluded, "the species will survive because there are hundreds of thousands of birds that reside within human habitation, all optimally managed".

Nest collectors, he started to advocate, would have to be empowered to harvest nests within the rigid framework of strictly scientifically harvesting regimes. This would have to be complimented in the 'Indonesian way', with a realistic long-term strategy that would include both in-situ and ex-situ conservation programmes, i.e., house ranching, both based on the economic importance of the species and using this importance to organise local communities to conserve the species.

In 1999, his recommendation took the form of an innovative initiative that was launched jointly by the Wildlife Circle of the Department of Environment and Forests, Andaman and Nicobar Islands, and SACON. The final aim of the initiative was to ensure protection of the nests in the wild so that eggs would be available for the house ranching ex situ component. The project took off well. Protection accorded to a complex of 28 caves on Challis Ek in North Andaman Island, and one cave on Interview Island Wildlife Sanctuary, saw over 3,000 chicks being fledged, a growth of over 25% in the population of the swiftlets at these sites. A team of local people, who were earlier nest collectors, were now being motivated towards protection, and subsequently, sustainable harvesting.

The law becomes the hurdle

Just as phase one was taking off, the law came into the picture, and in October 2003 the Edible-nest Swiftlet was put onto Schedule I of the Wildlife Act. This meant that there could be no activity that involved use of, or trade in the nest of the bird—the primary premise on which Sankaran's initiative had been based. The entire project was dealt a set back and in spite of continued efforts, over the years, to have the swiftlet removed from Schedule I, it continues to be listed there.

Admittedly there are genuine concerns about the de-listing of a species and the implications of an act of this kind. The biggest fear is of setting a precedent that could be misused by vested interests. In this case however, the recommendations are based on solid, detailed, and pioneering scientific studies of nearly a decade, and were in turn backed with a wealth of international information and experience. "Its more like apiculture," would be Sankaran's argument, "where bees are reared for their honey. House ranching of swiftlets cannot be likened to the farming of animals for skin or meat". The implication of not delisting the bird is that the conservation initiative is bound to fail, while harvesting from the wild would continue unabated. The consequences of this would be the local extinction of the bird in the Andaman & Nicobar Islands—a predicament that was summed up with stunning simplicity by J. C. Daniel of the Bombay Natural History Society. Speaking during the concluding session of the International Seminar to commemorate the centenary Journal of the Bombay Natural History Society in Mumbai in November 2003, he spoke of the fate of the Edible-nest Swiflet if corrective action was not taken at the earliest: extinction by protection—the ultimate oxymoron.

Photo: Pankaj Sekhsaria

Ravi with his field staff and wife Deepa at the Edible-nest Swiftlet Camp, Challis Ek, North Andaman Island. (Challis Ek translates as '41'—which is the number of caves in this cave complex where the swiftlets are found). At extreme left is Alex, Ravi's man Friday. They worked together for a vey long time and, like was Ravi's way of working, they also became close family friends.

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he was pleased to release amongst the "pigeons", and of which he had already told his friends before the meeting started.

Much has been said about Ravi's contribution to science and conservation, his ability for hard work, his administrative skills as Director of SACON when he was so suddenly taken away from us all. At the memorial meeting held at Chennai, speaking eloquently about her mentor, one of Ravi's students elucidated so well Ravi's basic approach—he would constantly hammer in the conservation angle to his students, she told us, and would say, 'What are you going to do with your petty PhDs? What are you going to do for the subject that you are studying, what are you going to give back to the habitat and the people in the area? Think about that.'

For years Ravi had been telling us to make a film on the grasslands, and would talk at length of the importance of these for water conservation, rural India, and wildlife. As much of Gujarat has had a good monsoon this year, Shanthi and I went looking for the Lesser Florican, and were pleased to find a good number jumping in the various grasslands. Ravi had taken a fuzzy photo of a male bird walking through the grass, with neck outstretched, and head plumes pointing forward, a possible threat display, which our common friend and reputed wildlife artist, Carl D'Silva, converted into a remarkable etching on glass that now adorns a space in our home. We were fascinated to see the same posture, assumed by a male bird, just two weeks back, as it moved purposefully forward through short grass, and also managed to record it on video. Looked like it was not too pleased to see a Black Partridge *Francolinus francolinus* too close to its jumping spot!

This once again brought on the emptiness that one feels without the enthusiastic and all effusive presence of Ravi—how pleased he would have been to see the video of the florican with neck outstretched and head plumes pointing forward and even more so, as he had not described this in any detail in any of his published papers, but had only spoken of it in informal forums at the BNHS, at which Carl was also present.

While we were in Gujarat, a friend forwarded us an article that had appeared in the Indian Express on the 18th of August 2009.

"Selling bird's nest soup to save this bird: there's a change in law."

The National Board for Wildlife (NBWL) had finally de-listed the Edible-nest Swiftlet for 3 years, to allow the sustainable harvesting of the bird's nest to help the long-term survival of the species by involving nest collectors in the conservation effort. The proposal had been pending with the NBWL for three years. Ravi's work in the Andamans had been directed exactly towards this. He would have been happy, but would also have insisted that a lot of work remained to be done, and directed some of his students towards the Andamans, if not headed out there himself!

Animals, birds, furry and feathered, smooth, spotted, striped and mottled creatures have lost someone who loved them so very much. Landscapes across the high mountains, flood plains of the Bengal Florican, the grassland and deserts of the Lesser Florican and the bustard all have lost a friend who represented them with passion, aided so well with an authority gained through scientific enquiry. But for me, my dear friend Ajith Kumar's words on Facebook says it all—I copy and paste:

'ltm' said..."Lots of people like me are still grieving in silence, not for the loss to conservation, but for having lost a great friend; no words can express our sorrow...time cannot heal this wound".

Male Lesser Florican *Sypheotides indica* threat display. Glass etching by Carl D'Silva. Collection of Ashish & Shanthi Chandola.

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—In the news[1]—

Compiled by Praveen J.

Great Himalayan Bird Count - 2009

After the grand success of "Great Himalayan Bird Count, Winter of 2008", Action and Research for Conservation of Himalayas (ARCH) has announced the dates of this year's counts. "Great Himalayan Bird Count, Winter of 2009" is planned along 36 popular trekking trails situated in the valleys of rivers Tons, Yamuna, Bhagirithi, Bhilingna, Ganga, Mandakini, and Alaknanda, in the Garhwal Himalayas, including Asan, and Jhilmil Jheel Conservation Reserves in Dehradun, and Haridwar districts, respectively. The bird count will start on 7 November 2009 at Dehradun and finish three days later, on 10 November, at the same location. Sixteen groups will undertake 36 different treks of roughly ten kilometers each, during these days. ARCH is encouraging the participation of school children as they strongly feel that young minds should start thinking of conservation as an academic and career pursuit rather than as just another creative pastime. This event will be organized with the support of the forest department of Uttarakhand. For more details on participation and methodology please email *arch.himalayas@yahoo.co.in* or *arch.birdcount@yahoo.in*.

A new 'Bald' Bulbul from Laos

An odd songbird with a bald head, living in a rugged terrain in Laos, has been discovered by scientists of the Wildlife Conservation Society (WCS), and the University of Melbourne, as part of a project funded and managed by the mining company Minerals and Metals Group (MMG). Named Bare-faced Bulbul *Pycnonotus hualon*, because of the lack of feathers on its face and part of its head, it is the only example of a bald songbird in mainland Asia. It is the first new species of bulbul, a family of about 130 spp., described from Asia in over a century. A description of the new species has been published in the July 2009 issue of *Forktail*, the journal of the Oriental Bird Club. The thrush-sized bird is greenish-olive, with a light-coloured breast, a distinctive, featherless, pink face with bluish skin around the eye, extending to the bill, and a narrow line of hair-like feathers down the centre of the crown. The bird seems to be primarily tree dwelling. It was found in an area of sparse forest, on rugged limestone karsts—a little-visited habitat known for unusual wildlife discoveries. This discovery highlights the importance of this region for birds and biodiversity. Fortunately, much of the bird's presumed habitat falls within legally protected areas in Laos. However, quarrying of limestone looms as a potential threat to wildlife in this area, along with conversion of habitat for agriculture (*http://www.birdlife.org*).

From the field

Vivek Tiwari reported an Osprey *Pandion haliaetus* along with other birds like Wedge-tailed Green Pigeon *Treron sphenura*, Sooty Flycatcher *Muscicapa sibirica*, Spotted Forktail *Enicurus maculatus*, Yellow-breasted Greenfinch *Carduelis spinoides*, and Greater Pied Kingfisher *Todiramphus chloris* between 6–8 August 2009 at Sat Tal, Uttarakhand (*DelhiBird*). Mohina Macker and others reported Bridled *Sterna anaethetus* and White-cheeked *S. repressa* Terns near Colaba fishing village, Mumbai on 26 July 2009 (*BirdsofBombay*). A set of coucal photographs taken by Bhaskar Das on 25 August 2009 from the Howrah area, in West Bengal, also showed a sub-adult Lesser Coucal *Centropus bengalensis*. Sumit Sen (Kolkata) believes that this area might hold a good population of Lesser Coucals (*BengalBird*). Anand Arya photographed a Common Redshank *Tringa totanus* with a ring on its right leg. S. Balachandran of BNHS felt that this bird could have been one of several ringed during September 2002 at the Basai wetlands. BNHS puts rings on the right legs of birds during even years, and on the left, during odd (*DelhiBird*). Kiran Srivastava reported a pair of Blue-winged Parakeets *Psittacula columboides* from Sanjay Gandhi National Park, Mumbai, on 9 August 2009—a species not seen often around Mumbai (*BirdsofBombay*). Uma K., and friends reported an Indian Cuckoo *Cuculus micropterus* chick being parented by Black Drongos *Dicrurus macrocercus* at Biligirirangan Hills, southern Karnataka, in June 2009 (*BngBirds*). Dipu Karuthedathu reported a similar observation of a juvenile Brainfever Bird *Hierococcyx varius* among a group of Jungle Babblers *Turdoides striatus* on 16 August 2009 from Shornur, Kerala (*KeralaBirder*). Vivek Tiwari and other delhibirders reported a Common Cuckoo *C. canorus*, presumably on passage, at Sultanpur on 1 August 2009(*DelhiBird*). Vaibhav Deshmukh reported a juvenile Eurasian Hobby *Falco subbuteo* on passage, busy feeding on dragonflies, near Alibag, Maharashtra on 5 August 2009 (*BirdsofBombay*). On 12 July 2009, Gnaneskandan Keshavbharathi reported a sighting of Fulvous Whistling Ducks *Dendrocyna bicolor* at Pallikaranai Marsh near Chennai (*TamilBirds*). Manjula Mathur reported a Rufous-tailed Scrub Robin *Cercotrichas galactotes* at Taal Chhapar on 8 August 2009 (*DelhiBird*). Tulsi R. Subedi reported a large congregation of 240 Indian White-backed Vultures *Gyps bengalensis*, along with one Himalayan Griffon *G. himalayensis*, one Slender-billed *G. tenuirostris*, two Red-headed *Sarcogyps calvus*, and nine Egyptian *Neophron percnopterus* Vultures on a single carcass in Nepal, evoking interest in population recovery of these critically endangered birds (*OrientalBirding*). Anshuman Varma and friends reported Koklass Pheasant *Pucrasia macrolopha*, Blue-throated Flycatcher *Cyornis rubeculoides*, Speckled Piculet *Picumnus innominatus*, and Black-throated Sunbird *Aethopyga saturata* among other birds from a trip to Pangot, Uttarakhand between 26 and 28 June 2009 (*DelhiBird*).

A quest for 'lost' birds

BirdLife International is launching a global bid to try to confirm the continued existence of 47 spp., of birds that have not been seen for up to 184 years. The list of potentially lost birds is a tantalising mix of species ranging from those inhabiting the least visited places on earth—such as remote islands, and parts of the western Himalayas—to those occurring in parts of Europe, and the United States of America. Some of the species high in the list of lost birds are Ivory-billed Woodpecker *Campephilus principalis*, Jamaican Petrel *Pterodroma caribbaea*, Hooded Seedeater *Sporophila melanops*, and our own Himalayan Quail *Galloperdix bicalcarata* and Pink-headed Duck *Rhodonessa caryophyllacea*. History of ornithology has shown that we should not give up on species that are feared to have gone extinct. Species like Cebu Flowerpecker *Dicaeum quadricolor*, and closer to home, Jerdon's Courser *Rhinoptilus bitorquatus* and Forest Owlet *Heteroglaux blewitti*, have been rediscovered at the eleventh hour, just before the last remnants of their habitats were

[1] For the period 15th June–15th August 2009.

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destroyed. The announcement of the quest for lost species is being made at the launch of the 21st British Birdwatching Fair at Rutland Water, UK. Cebu Flowerpecker is chosen as the emblem of this year's fair, because it provides hope and inspiration not to give up on a lost species. Philippines Ministry of Tourism has agreed to become the BirdLife Species Champion for this forest jewel. However in India, we continue our quest to get such a species champion for the Jerdon's Courser, which inhabits the scrub jungle in and around Sri Lankamalleswaram Wildlife Sanctuary in Kadapa district, with their numbers reduced to just about 50 birds. Funding from the UK's Darwin Initiative, which helped in studying its population, alternative habitat, and conservation requirements, is nearing its end, and BirdLife International has stepped in to highlight the urgent need for a Species Champion (*http://www.birdlife.org*).

Birders contribute $36 billion to US economy

According to a new report released by the U. S. Fish and Wildlife Service in mid July 2009, birdwatchers contributed a whopping $ 36 billion to the economy of United States in 2006. One out of every five Americans, 48 million people in all, watch birds. The report identifies who birders are, where they live, how avid they are, and what kinds of birds they watch, along with how much they spend on their hobby, and the economic impact of such spending. Participation in bird watching is highest in the northern half of the U.S., with the most number of birders in Montana, Maine, Vermont, Minnesota, and Iowa. The report is an addendum to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The survey, conducted by the U. S. Fish and Wildlife Service in partnership with state wildlife agencies and national conservation organizations, has become the reference for participation and expenditure information on fish and wildlife recreation in the United States. The survey helps quantify how enjoyment of the outdoors and wildlife contributes to society, and promotes a healthy economy—and further strengthens the Service's commitment to conserve the nation's wildlife for the enjoyment and benefit of its citizens. It would be an interesting idea to start such a survey in India and study the eco-trend of our population (*http://www.citizen-times.com*).

Hundreds of new species being discovered in eastern Himalayas

Over 350 new species, including the world's smallest deer, a "flying frog", an exquisitely coloured bird, and a 100 million-years old gecko have been discovered in the eastern Himalayas, a biological treasure trove that is now threatened by climate change. A decade of research carried out by scientists in remote mountain areas endangered by rising global temperatures brought exciting discoveries such as a bright green frog that uses its red, and long, webbed feet to glide in the air. The beautiful Bugun Liocichla *Liocichla bugunorum*, discovered just a couple of years ago from Eaglenest (Arunachal Pradesh) has catapulted the eastern Himalayas onto all bird conservation maps. One of the other significant findings was not exactly "new" in the classic sense. A 100-million year-old gecko, the oldest fossil gecko species known to science, was discovered in an amber mine in the Hukawng Valley in northern Myanmar. A report entitled *The eastern Himalayas—where worlds collide* by WWF details discoveries made by scientists from various organisations between 1998 and 2008 in a region reaching across Bhutan and north-eastern India to the far north of Myanmar as well as Nepal, and the southern parts of the Tibet Autonomous Region (China). However, the good news of this explosion in species discoveries is tempered by the increasing threats to the Himalaya's cultural and biological diversity. This rugged and remarkable landscape is already seeing direct, measurable impacts from climate change, and risks being lost forever. The report describes more than 350 new spp., discovered, including 244 plants, 16 amphibians, 16 reptiles, 14 fish, two birds, two mammals, and at least 60 new invertebrates. The eastern Himalayas harbor a staggering 10,000 plant, 300 mammal, 977 bird, 176 reptile, 105 amphibian, and 269 freshwater fish species. Historically, the rugged and largely inaccessible landscape of the eastern Himalayas has made biological surveys in the region extremely difficult. As a result, wildlife has remained poorly surveyed with large areas still remaining biologically unexplored. Today, further spp., continue to be unearthed, and many more spp., of amphibians, reptiles, and fish are currently in the process of being officially named by scientists (*http://www.sciencedaily.com*).

— Editorial —

Early this year, when Ravi Sankaran passed away so unexpectedly, all I could think of was how *Indian Birds* could carry forward the memory of this charismatic ornithologist. I wrote to several of his seniors, colleagues, friends, well-wishers, and students, and asked them to write something which they would like to offer for publication 'as a tribute to the memory of Ravi Sankaran', in a special memorial issue of *Indian Birds*. Their response was spontaneous and generous—you have the result in your hands. Of course, given our schedule, some could not send a paper in time, but their work, in the fields of ornithology and conservation, is the type of memorial Ravi would have understood and appreciated.

Shankar Raman heard about our plans and emailed me his wish to contribute a joint paper with Divya! Lalita Vijayan, convalescing from an illness, wrote about SACON's work in the Andaman & Nicobar Islands. Asad R. Rahmani's comprehensive assessment of Ravi's telling contribution to Indian ornithology is the most personal among all the papers, as he revisited memories of Ravi with every word he set down. Shirish Manchi, Ravi's student, was the first to send in his note. Pankaj Sekhsaria sent several pictures, and a note on how our quirky legal system created a paradox for the Edible-nest Swiftlet's survival. Aparajita Datta kept her promise and rushed in her paper in the nick of time. Ashish Chandola's reminiscences touch the heart about a man who delighted in the call of the Rain Quail *Coturnix coromandelica*. Carl D'Silva allowed us to use a picture of his brilliantly rendered glass etching, and Ramki Sreenivasan sent in his brilliant photograph of a displaying male Lesser Florican *Sypheotides indica*.

I would like to thank all of them for making this issue of *Indian Birds* possible.

"*Vivat, crescat, floreat Ornithologia Indiae.*" [May Indian Ornithology live, grow and flourish.]
– Ernst Mayr. Rec. Indian Mus. 1952. L (I): 2.

– Aasheesh Pittie

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Aims & Objectives

- To publish a newsletter that will provide a platform to birdwatchers for publishing notes and observations primarily on birds of South Asia.
- To promote awareness of birdwatching amongst the general public.
- To establish and maintain links/liaison with other associations or organized bodies in India or abroad whose objectives are in keeping with the objectives of the Trust (i.e. to support amateur birdwatchers with cash / kind for projects in ornithology).

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Front cover: Grey Junglefowl *Gallus sonneratti*

Photographer: Clement Francis

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Reproductive biology of the Square-tailed Black Bulbul *Hypsipetes ganeesa* in the Western Ghats, India

P. Balakrishnan

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Manuscript received on 3 August 2009.

Abstract

Black bulbuls (genus: *Hypsipetes*) are a poorly known group of passerine birds, distributed widely in Africa and southern Asia. In this article, I provide the first detailed examination of the reproductive biology of Square-tailed Black Bulbul *Hypsipetes ganeesa* based on 81 nests studied in Silent Valley National Park, Western Ghats, southern India, from 2003 through 2005. Breeding occurred from January to June with peak egg laying during April–May. The small open-cup nests were placed 1.2–11 m off the ground in trees 2–15 m tall. Black Bulbul used ten plant species as nest substrates, with about half of the nests placed together in *Glochidion ellipticum*, and *Wendlandia notoniana*. Clutch size was two in more than 96% of nests. Incubation, and nestling periods were 13, and 12 days, respectively. Overall nest success rate was 12.84%. Egg, and nestling predation were the main causes of nest failures. In general, most life history traits of the Square-tailed Black Bulbul were similar to those reported for other members of the family; however, this comparison is constrained by the paucity of information on the breeding biology of most *Hypsipetes* species, and indicates the need for further studies of life histories in the genus.

Introduction

The family *Pycnonotidae* (bulbuls) is a large group of passerines of the Old World tropics comprising 138 species and 355 taxa, widespread in southern Asia, Africa, Madagascar, and islands of the western Indian Ocean (Sibley & Monroe 1990; Fishpool & Tobias 2005). Of the 27 genera currently treated within the family, 11 are exclusively Asian, and 14 are restricted to Africa, and islands of the western Indian Ocean (Fishpool & Tobias 2005). The genus *Hypsipetes* is treated as a complex of seven species, collectively known as 'black bulbuls' that occur in islands of the Indian Ocean, and continental Asia, from Madagascar to central China (Gregory 2000; Fishpool & Tobias 2005). All the Asian mainland forms are lumped together under the polytypic species *Hypsipetes leucocephalus*, but the isolated races of southern India (*ganeesa*) and Sri Lanka (*humii*) are presently treated as the Square-tailed Black Bulbul *H. ganeesa* (Fishpool & Tobias 2005; Rasmussen & Anderton 2005). Apart from comprehensive molecular studies (Pasquet *et al*. 2001; Moyle & Marks 2006), information on the life histories, and morphological characteristics of all members of the genus may help in elucidating the phylogenetic relationships among taxa, and also to understand the selective pressures acting on the biology of individual species. However, little is known about the biology and ecology of *Hypsipetes* bulbuls.

The aim of the present study was to provide a detailed description of the breeding biology of Square-tailed Black Bulbul (Fig. 1a & 1b) distributed throughout the Western Ghats in southern India. The Square-tailed Black Bulbul is a locally abundant and resident species that shows regular seasonal altitudinal movements (Ali & Ripley 1987; Raman 1999). It inhabits wet evergreen forests and sholas from 1,000 m to the top of the hills, and also occurs in eucalyptus, shade coffee, tea, and cardamom plantations. It is a conspicuous bird with slate-grey to black body, black crest, slightly forked tail; and red bill, legs and feet (Ali & Ripley 1987). The breeding biology of this species is poorly known and only limited characteristics of the nests and eggs have been described (Baker 1932; Ali & Ripley 1987; Fishpool & Tobias 2005). Here, I present data on breeding season, nest characteristics, clutch sizes, developmental periods, breeding success, and causes of nest failures, and compare this information with available data for other Pycnonotids.

Materials & methods

Study area

The study was conducted from 2003 through 2005 breeding seasons (January–June) in the core areas of Silent Valley National Park (11°00′–11°15′N 76°15′–76°35′E; 90 km², 600–2,383 m above sea level) in the Western Ghats, India. The breeding habitat of the species is mainly located on the northern slopes of the park, at altitudes ranging from 1,100 to 2,300 m above sea level. The

Fig. 1a. Incubating Square-tailed Black Bulbul *H. ganeesa*.

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P. Balakrishnan

Fig. 1b. Nest and nestlings of Square-tailed Black Bulbul.

dominant vegetation types at these elevations are west coast tropical evergreen forest, southern subtropical broad-leaved hill forest, and southern montane wet temperate forest (shola forests) interspersed with savannah woodlands and montane grasslands. Dominant tree families in the study sites were Lauraceae, Euphorbiaceae, Myrtaceae, Clusiaceae, and Myristicaceae (Manilal 1998; Das 2008). Mean minimum and maximum daily temperatures during the study were 19.83°C and 25.78°C, respectively. Annual rainfall ranged from 4,900 to 8,260 mm, with more than half of it occurring during the south–west monsoon (May–September).

Nest searching & monitoring

The breeding population of the Square-tailed Black Bulbul arrived at the study sites by late December (first sighting dates were 23.xii.2003, and 30.xii.2004 for the 2004 and 2005 breeding seasons respectively), and moved to the lower altitudes by early June. I searched for nests during 2003 through 2005. Nests were located by following individuals carrying nesting material or food to the nests, based on other behaviour cues, and by searching vegetation. Once found, I monitored nests every 1–2 days, and everyday during the transition of nesting stages to determine the clutch size, start and duration of the developmental periods (incubation and nestling) and the fate of the nest. Nests accessible from the ground were monitored by direct observation. I used a pole and mirror to check the contents of higher nests. Standard protocols were followed during nest monitoring to minimize disturbance to birds, and habitat, and prevent observer-induced nest predation (Martin & Geupel 1993; Balakrishnan 2007). Timing of breeding was determined by pooling the number of clutches initiated per month for all the three breeding seasons. Clutch initiation dates were determined either by direct observation of the egg laying or by calculations made using the known hatching dates and mean developmental periods. For the calculation of the developmental periods, I used only those nests whose breeding stage transitions could be observed directly. Nests that produced at least one young were considered successful. Hatching, nestling, and breeding success were defined as the probability that eggs laid would hatch, the probability that hatchlings would fledge, and the probability that eggs laid would survive from laying to fledging, respectively. I measured inner diameter, external diameter, and height and depth of nests to the nearest centimeter in the field, and cup thickness, cup volume and material volume were calculated from these measurements (Soler *et al.* 1998; Balakrishnan 2007). Nest height, plant species, and height of the nest substrate were recorded immediately after the fledging of the young or their predation. Orientation of the nest around the substrate plant was recorded to the nearest degree using a Suunto MCA-D compass.

Data analysis

To compare the relationship between breeding seasonality and climatic variables, I used meteorological data from the Walakkad forest station of the Kerala Forests and Wildlife Department. The nonparametric Spearman's rank correlation was used to evaluate the relationship between clutch initiations per month, and climatic

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variables. Variation in the nest placement attributes among breeding years, and successful and failed nests were analyzed with univariate ANOVA. I used nonparametric Watson one-sample U^2 tests for circular distributions to test for uniform distributions of nest orientations (Zar 1999).

Daily nest survival rates were estimated using the Mayfield method (Mayfield 1961, 1975). Exposure days were calculated from the interval between the day the first egg was laid or the day the nest was found if after laying, and the day of fledging. For failed nests, the date of failure was estimated as the mid-point between the date the nest was last known to be active and the date it was found to have failed. Daily survival rates and nest success were calculated separately for the incubation, nestling, and overall nesting stages, and breeding seasons. Standard errors for survival rates were calculated as described in Johnson (1979). Reported values are mean ± SD for all measurements unless otherwise indicated. All tests were two tailed, and differences were considered significant at $P < 0.05$. All statistical analyses were performed by using SPSS 10.0 (SPSS Inc.) and Oriana 2.0 (Kovach Computing Services).

Results

Timing of breeding

I located and monitored a total of 81 active nests of the Square-tailed Black Bulbul in Silent Valley National Park during 2003 through 2005 breeding seasons. All the nests were found within an altitude range of 1,210–2,050 m. The breeding season started in January–February and ended in early June, by the onset of heavy monsoon. First egg laying dates were 17 February, 26 January, and 20 February for the 2003, 2004, and 2005 breeding seasons respectively. Peak egg laying was observed during April–May (Fig. 3). The number of clutches initiated per month was not correlated with the monthly rainfall ($r_s = -0.043$, $P = 0.824$) and number of rainy days per month ($r_s = -0.021$, $P = 0.915$), but weakly correlated with the maximum temperature ($r_s = 0.418$, $P = 0.024$, $n = 29$).

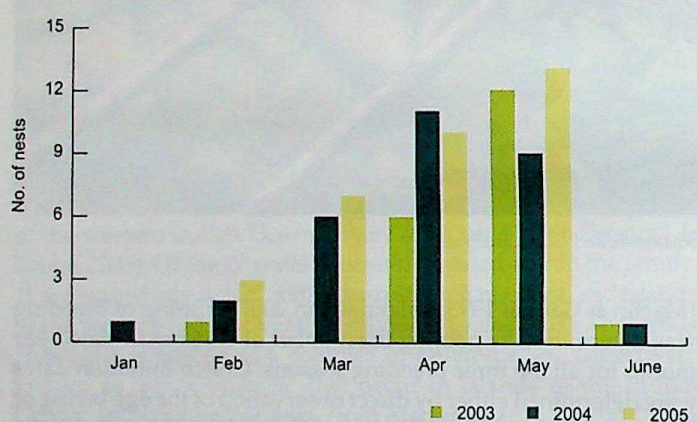

Fig. 3. The number of Square-tailed Black Bulbul nests initiated per month (n = 81 nests from the 2003 to 2005 breeding seasons).

Nest characteristics and placement

Square-tailed Black Bulbuls build cup-shaped nests out of grasses, dead leaves (*Glochidion ellipticum, Oreocnide integrifolia, Symplocos cochinchinensis, and Wendlandia notoniana*), plant fibers, moss, lichens, and cobwebs, decorated with dry moss, and rarely, spider cocoon, and bark pieces. The internal linings constituted of rootlets of pteridophytes and other soft materials. The measurements of nests are shown in Table 1. Both sexes participate in nest building but there is considerable variation in each sex's contribution, which is not quantified, as the population is not colour marked. Nest construction took an average of 4.43 ± 0.79 days (range = 3–5 days, n = 7).

Table 1. Measurements of Square-tailed Black Bulbul nests (n = 65 nests).

Particulars	Mean	SD	Range
Outer diameter (cm)	8.84	0.55	7.60–10.20
Inner diameter (cm)	5.54	0.52	4.70–6.80
Outer nest height (cm)	6.58	0.76	5.00–9.20
Cup depth (cm)	4.50	0.59	3.20–6.00
Nest thickness (cm)	3.30	0.36	2.20–4.00
Cup volume (cm^3)	292.71	74.61	180.34–561.42
Material volume (cm^3)	792.51	162.03	477.36–1557.81

The mean nest height was 4.42 ± 2.09 m (range = 1.2–11 m), and the mean height of trees in which nests were built was 7.01 ± 3.40 m (range = 2–15 m). The mean relative height of nests was 0.66 ± 0.17 (range = 0.25–0.92). In general, there was no annual variation in the nest (ANOVA, $F_{2,78} = 0.049$, $P = 0.952$) and relative heights ($F_{2,78} = 0.073$, $P = 0.930$). However, the successful nests had significantly low nest height compared to failed nests (mean = 3.38 ± 1.41 m vs 4.77 ± 2.17 m; $F_{1,79} = 7.094$, $P = 0.009$).

Majority of the successful nests were placed closer to the middle of the trees, and significantly varied from the failed nests which were placed in the top layer of the trees (mean relative height = 0.44 ± 0.11 vs 0.74 ± 0.11; $F_{1,79} = 104.438$, $P = 0.001$). Square-tailed Black Bulbuls used ten plant species as nest substrates, with about half of the nests placed together in *Glochidion ellipticum*, and *Wendlandia notoniana* (Table 2). The mean (± SE) nest orientation of Square-tailed Black Bulbul nests was 168.29 ± 20.07 . The nests were not distributed uniformly around the plants (mean vector (r) = 0.221, Watson's $U^2 = 0.217$, $P < 0.05$), but situated without any strong directionality in placement (n = 81, Fig. 4).

Table 2. Plant species used for nesting with nest placement attributes and success rate.

Plant species	Nest height in m ± SD	Tree height in m ± SD	No. of nests (%)	% successful	Fledged /nest
Glochidion ellipticum	3.53 ± 0.92	5.44 ± 1.18	21 (25.93)	33.33	0.67
Wendlandia notoniana	2.89 ± 1.12	4.24 ± 1.45	18 (22.22)	22.22	0.44
Symplocos cochinchinensis	4.72 ± 1.66	7.28 ± 2.93	9 (11.11)	22.22	0.44
Clerodendrum viscosum	4.14 ± 1.58	6.21 ± 2.75	7 (8.64)	28.57	0.57
Syzygium palghatense	5.86 ± 1.70	10.50 ± 2.50	7 (8.64)	28.57	0.57
Syzygium cumini	6.70 ± 2.54	11.70 ± 2.22	5 (6.17)	20.00	0.40
Elaeocarpus munronii	7.14 ± 1.87	13.20 ± 2.49	5 (6.17)	20.00	0.40
Oreocnide integrifolia	3.63 ± 1.34	5.63 ± 0.85	4 (4.94)	25.00	0.50
Unidentified species	8.67 ± 2.52	11.33 ± 2.89	3 (3.70)	0.00	0.00
Schefflera stellata	5.00 ± 2.12	7.01 ± 3.40	2 (2.47)	0.00	0.00

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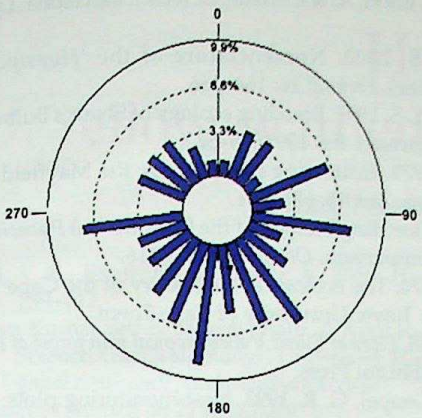

Fig. 4. Circular frequency distributions of nest placement around the nest plants (n = 81 nests, bin width =15). Doted circles indicate scale (% of nests).

Clutch size, and duration of the incubation, and nestling periods

Mean clutch size was 2.04 ± 0.19 (n = 81 nests, 78 with two eggs, and three with three eggs). Eggs were laid in the morning, and the laying interval was approximately 24 hrs. The incubation period ranged from 12–13 days (mean = 12.75 ± 0.45 days, n = 12), and nestling period averaged 11.88 ± 0.34 days (range = 11–12 days, n = 16). The overall incubation and nestling periods together was 24.82 ± 0.40 days (range = 24–25, n = 11). Thus, the complete breeding cycle from the start of nest construction to the time when nestlings left the nest, took about a month.

Nest success & causes of failures

Of 81 active nests monitored, 24.69% fledged at least one chick. The hatching success of all eggs known was 46.06% (76 hatchlings from 165 eggs, n = 81 nests), and fledging success was 52.63% (40 fledged out of 76 hatched, n = 38 nests). Overall breeding success (% eggs fledged) was 24.24%. Daily mortality rate during the incubation period was 0.084 (n = 512 egg-days for 81 nests), and during the nestling period was 0.069 (n = 262 nestling-days for 38 nests). The daily survival rate (±SE) for the entire nesting period was 0.921 ± 0.010, which equates to an overall nest success rate of 12.84%. Nest success did not vary greatly among the breeding years (Table 3).

Table 3. Mayfield daily nest survival rate and nest success of Square-tailed Black Bulbul during different breeding stages and years, Silent Valley National Park, southern India.

Reproductive period/year	Exposure days	No. of nests	No. of nests failed	Daily nest survival ± SE	Nest success
Incubation	512	81	43	0.916 ± 0.012	31.97
Nestling	262	38	18	0.931 ± 0.016	42.57
Overall nesting	774	81	61	0.921 ± 0.010	12.84
2003	194	20	16	0.918 ± 0.020	11.63
2004	297	28	21	0.929 ± 0.015	15.99
2005	283	33	24	0.915 ± 0.017	10.91

Nest predation was high, accounting for 93% (57 of 61 nests) of all known nest failures. These nests were characterised by the complete loss of the eggs or chicks. Black-shouldered Kite *Elanus caeruleus* was observed depredating one Square-tailed Black Bulbul's nest, and consuming its entire contents. Indian rat snake *Ptyas mucosa* was also observed depredating Black Bulbul nests at Muthikkulam reserved forest (*pers. obs.*). Other possible predators include colubrid snakes, corvids, raptors, and arboreal mammals. Two nests were destroyed when their nesting plants collapsed due to strong winds. No brood parasitism was observed in Silent Valley, however, the presence of two blue-coloured oval-shaped eggs (probably those of Pied Cuckoo *Clamator jacobinus*) in one of the Square-tailed Black Bulbul nests at Muthikkulam reserved forest (*pers. obs.*) indicates the species is parasitised.

Discussion

Pycnonotids breed at varying times of the year, and are multi-brooded. The equatorial Asian, and African species are reported to breed throughout the year, and some are known quite commonly to raise three broods in a year, and rarely up to five broods (Ali & Ripley 1987; Fishpool & Tobias 2005). However, throughout their range the breeding activities of the montane forest species tend to be suppressed during the wettest, and coldest months (Ali & Ripley 1987; Fishpool & Tobias 2005). Breeding of Square-tailed Black Bulbul in Silent Valley National Park occurred between January and June with peak breeding in April–May (>72% total clutch initiations; Fig. 3). On the other hand, co-existing bulbuls in the mid-elevation forests, such as Yellow-browed *Iole indica*, and Grey-headed Bulbul *Pycnonotus priocephalus*, breed slightly earlier. Peak breeding of Yellow-browed Bulbul was in January–February, and that of Grey-headed Bulbul was in April–March (Balakrishnan 2007). Higher levels of insectivory, compared to these two species' requirements, could be a reason for the closeness of peak breeding of Square-tailed Black Bulbul towards the monsoon, so that the peak food demand of chicks coincides with the arrival of the monsoon (Ali & Ripley 1987). Moreover, a majority of the Square-tailed Black Bulbul's egg-laying dates fall within the peak breeding months of south Indian passerines (Pramod & Yom-Tov 2000).

Nests of Square-tailed Black Bulbul are typically like those of similar species, made with materials available in the immediate vicinity of the nest sites. Nest construction period was similar (3–5 days) to the durations reported for other Pycnonotids: 2–5 days for Red-vented Bulbul *P. cafer*, 3–8 days for Yellow-throated Bulbul *P. xantholaemus*, and 3–8 days for Grey-headed Bulbul (Ali & Ripley 1987; Venkataswamappa & Chaitra 1999; Fishpool & Tobias 2005; Balakrishnan 2007). Nests were found in medium-sized trees, mostly in the rainforest–savannah woodland edges, placed at varying heights (1.2–11 m). Similar nest placement attributes (2–15 m) were reported for the Himalayan sub-species (*psaroides*) of the Black Bulbul (Ali & Ripley 1987). Diversity of nest substrates used was too low, with strong preference for *Glochidion ellipticum*, and *Wendlandia notoniana* (Table 2). More than 96% of nests had two eggs; the remaining had three. Ali & Ripley (1987) also reported the clutch size as two, and rarely three, which is the typical range of most of the African, and Asian species of bulbuls (Fishpool & Tobias 2005). Incubation, and nestling periods of Square-tailed Black Bulbul fall within the ranges of most species of bulbuls (11–14 days) (Liversidge 1970; Vijayan 1975, 1980; Walting 1983; Ali & Ripley 1987; Hsu & Lin 1997; Krüger 2004; Fishpool & Tobias 2005; Balakrishnan 2007), but are slightly lower than those of some African pycnonotids (Safford 1996; Fishpool & Tobias 2005).

The Mayfield success rates of breeding Square-tailed Black Bulbul were 31.97% for the egg stage, 42.57% for the nestling stage,

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and 12.84% for both combined. The success rates are similar to that of the Grey-headed Bulbul (10.79%), but slightly lower than that of the Yellow-browed Bulbul (17.21%) breeding at the same elevations (P. Balakrishnan, *unpubl. data*). Although nest predation rate is much higher than reported generally for tropical passerines (71%) (Robinson et al. 2000; Stutchbury & Morton 2001), most studies of Pycnonotids indicate high predation rates, often higher than 70% (Liversidge 1970; Vijayan 1975, 1980; Walting 1983; Hsu & Lin 1997; Krüger 2004; Fishpool & Tobias 2005; Balakrishnan 2007). Predation rates were higher during the egg stage than the nestling stage as reported for other species (Mermoz & Reboreda 1998; Balakrishnan 2007). Predation was the major factor limiting nesting success as reported for other open-cup nesting passerine birds (Ricklefs 1969; Martin 1993). The two predators confirmed as nest depredators were Black-shouldered Kite, and Indian rat snake. Species like common vine snake *Ahaetulla nasuta*, White-bellied Treepie *Dendrocitta leucogastra*, Greater Coucal *Centropus sinensis*, and jungle striped squirrel *Funambulus tristriatus* are also recorded as the predators of other bulbuls in Silent Valley National Park (Balakrishnan 2007). A majority of the Square-tailed Black Bulbul nests were placed high off the ground, so the role of arboreal mammals, raptors, and colubrid snakes in nest predation, and the level of brood parasitism deserve detailed investigation. A small portion of the late season nests also failed due to harsh weather.

In conclusion, the reproductive biology of Square-tailed Black Bulbul was similar in many aspects of other Pycnonotid species. However, this comparison is constrained by the lack of information on the breeding biology of most *Hypsipetes* species. Further research is needed to understand the growth rates, parental care patterns, and predators, and nest mortality rates for other populations of Black Bulbul along their distribution range. This would greatly benefit in understanding the geographic diversity of avian reproductive traits, and life history strategies in general, and to improve our understanding of the proximate, and ultimate factors that shape life-history traits of *Hypsipetes* bulbuls.

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Hatching success in Yellow-wattled Lapwing *Vanellus malabaricus*

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Introduction

The endemic Yellow-wattled Lapwing *Vanellus malabaricus* is found in most parts of the Indian Subcontinent. It is a sandy brown plover that breeds during April–July, and lays eggs in an unlined shallow scrape on dry open fallow or waste land, sometimes encircled by a parapet of pebbles (Ali & Ripley 1998; Grimmett *et al.* 1998).

Jayakar & Spurway (1965a & b, 1968) studied some aspects of breeding biology of Yellow-wattled Lapwing, and Santharam (1980, 1995) made a few additional observations—both studies were from southern India. In the present study observations have been made on the hatching success of this species in Haridwar (northern India) with an emphasis on the factors responsible for egg-loss or nest-failure.

Methods

Study was carried out during the peak breeding months (May–June) of Yellow-wattled Lapwing in 2006 and 2007. Observations were made from considerable distance (20.88 m ±5.89 m, mean ±SD) or hides using 10x50 prismatic binoculars in the scrub and wastelands of Haridwar district (29°55′N 78°08′E), Uttarakhand state (Fig. 1).

Amit Kumar

Fig. 1. Nesting habitat of the Yellow-wattled Lapwing in Haridwar, Uttarakhand, India.

Nests were found by spotting the bird—while it scraped the ground for nesting, incubating the eggs (Fig. 2), or threatening predators at nest-sites. Noon was the best time for spotting the nests as during this time nests were never left unattended and at least one of the birds was found sitting on the nests to protect the eggs from the high temperature. Searches for nests were done systematically and all parts of the study area were searched thoroughly and repeatedly. In addition, local inhabitants such as children, farmers, and cattle-grazers were regularly queried regarding the occurrence of the nest(s) of Yellow-wattled Lapwing in their premises or nearby areas.

Vinaya Kumar Sethi

Fig. 2. Yellow-wattled Lapwing incubating eggs in the study area

The clutch size of this species ranges from 3 to 4 (Fig. 3) with an incubation period of 27 to 30 days (Jayakar & Spurway 1968; Ali & Ripley 1998). Thus, nests found prior to clutch completion were inspected at intervals of 2–5 days, and more frequently during the expected dates of their hatching. Whereas, nests spotted after clutch completion were inspected invariably on alternate days at any time of the day. The colour of the eggs matches the soil to perfection. To re-spot/re-observe the nest quickly, and reduce the chance of attracting predators (Salek & Smilauer 2002), a brick with a stone on top was placed as a 'nest-marker' within a 1.5 m radius of the active nest. To minimize disturbance we did not spend more than ten seconds near the nest during inspection. A nest was assumed to be depredated when it was found empty after having previously been known to contain eggs, except when it was thought that incubation had completed and the nidifugous young moved on. It was often possible to distinguish successful and depredated nests because of parental shell removal behaviour. Empty nests containing yolk stains and large eggshell fragments, indented eggshells in the nest vicinity or, no eggshell fragments, were assumed to have been depredated (Beintema & Muskens 1987; Sordahl 1994; Hart *et al.* 2002).

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Vinaya Kumar Sethi

Fig. 3. A clutch of the Yellow-wattled Lapwing in the study area.

We measured only the net change in nests, eggs, and chicks and, therefore, could estimate only the minimum number produced in each nest (Gore & Kinnison 1991). In some nests we also observed asynchronous hatching (Jayakar & Spurway 1968), which took 20–43 hrs for completion. In addition, the young started moving out of nests within a couple of hours after hatching and concealed themselves in the nearby vegetation. Inspection of such nests, from which some young had left, but which still contained un-hatched eggs, could bias data. Therefore, such nests were observed either at dawn or noon, when the bird was clearly observed incubating / brooding. The existing ground cover was generally sufficient for chicks to conceal themselves, and so, to reduce any bias in detecting chicks, we, along with two local inhabitants, observed individual nests continuously, for longer durations (up to four hours) from a blind or a vehicle—to spot fleeing chicks, and search vegetation for those that were hiding.

Hatching success was defined as the number of eggs that hatched successfully, and was calculated as a percentage on the basis of the total number of eggs laid. Chicks were summarized per nest as a proportion. Data were tested statistically using two-tailed *t*-test (Zar 1984).

Observations & results

A total of 87 hrs was spent in the field in both years. A total of 16 nests of Yellow-wattled Lapwing were observed in 2006 (N=7) and 2007 (N=9). Three- and four-egg clutches were the only clutch sizes recorded during the present study. There were two nests with three-egg clutches in 2006 and four in 2007; while five nests containing four-egg clutches were observed both, in 2006 and 2007. Thus, a larger number of nests (62.5%) had four-egg clutches. Breeding parameters such as mean clutch size, mean number of eggs hatched, and mean number of eggs lost did not differ significantly between years (2006 & 2007), and thus the data of both the years were pooled for the assessment of hatching success (Table 1).

A total of 58 eggs were laid in 16 nests of the Yellow-wattled Lapwing, out of which 16 hatched successfully, leading to a hatching success of 27.58%. Different factors, namely predation, nest damage, and hatching failure were responsible for egg loss (Table 2).

We observed a fair difference in the behaviour of the incubating Yellow-wattled Lapwings, towards us, during different phases of their incubation period, which lasted 27–30 days. When we approached the nest during the early days of incubation, the incubating bird left the nest silently, without performing any agonistic displays (n=62 times for 9 lapwings). However, in later phase (after about 15 days of clutch completion) both adults produced alarm calls (n=128 times for 16 lapwings) (Fig. 4). The intensity and duration of alarm calls, accompanied by the diving display over us, were at a peak two–three days prior to hatching (n=57 times for 16 lapwings). Clutton-Brock (1991) has suggested that with the advancement in incubation period, the value of clutch increases for parents, and adults become more reluctant to desert nests. Similar alterations in the behaviour of incubating birds have also been reported in *V. chilensis* (Naranjo 1991) and *Recurvirostra avosetta* (Cuervo 2004).

Vinaya Kumar Sethi

Fig. 4. Parent Yellow-wattled Lapwing emitting alarm calls to deter predators in the study area.

Discussion

Hatching success in Yellow-wattled Lapwing nests was found low (27.58%) in the present study when compared with the earlier reported hatching success (36.84%) for the same species (Jayakar & Spurway 1968) as well as other ground nesting birds,

Table 1. Average clutch size, number of eggs hatched and lost in Yellow-wattled Lapwing between study years (2006-07).

Clutch size [Mean±SD]		No. of eggs hatched [Mean±SD]		No. of eggs lost [Mean±SD]	
2006	2007	2006	2007	2006	2007
3.71±0.48 (n=7)	3.62±0.52 (n=9)	0.85±0.69 (n=7)	0.87±1.26 (n=9)	2.85±0.69 (n=7)	2.75±1.33 (n=9)
t = 0.62, df= 13, P>0.05		t= 0.51, df= 13, P>0.05		t= 0.80, df= 13, P>0.05	

Table 2. Productivity in nests of the Yellow-wattled Lapwing during 2006-07.

Nests observed	Eggs laid	Eggs hatched	Hatching success (%)	Eggs lost	Loss of eggs (%) due to		
					Predation	Nest-damage	Hatching failure
16	58	16	27.58	42	51.73	17.24	3.45

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e.g., *Charadrius bicinctus* (44%, Bomford 1978), *C. montanus* (61%, Graul 1975), *Anarhynchus frontalis* (>70%, Hay 1984), *Thinornis novaeseelandiae* (>75%, Davis 1994), *Pluvialis apricaria* (43%, Pearce-Higgins & Yalden 2003), *Recurvirostra avosetta* (89%, Cuervo 2004), *Himantopus himantopus* (94%, Cuervo 2004), *etc.*

It is well known that ground-nesting birds are victims of high rates of predation of their eggs and young (Armstrong 1954; Massey & Fancher 1989; Salek & Smilauer 2002), and that predation has been reported as a major limiting factor to their productivity (Newton 1994; Pearce-Higgins & Yalden 2003; Cuervo 2004). In the present study also, low hatching success of Yellow-wattled Lapwing was attributed mainly to the increased predation rate as their nests were easily accessible to a large number of predators (Table 2). It was difficult to see the actual predation of eggs, and most of the conclusions in this respect were inferential, based on circumstantial evidence.

Similar to Jayakar & Spurway (1965a, 1968), we too observed aerial (corvids and other large birds) as well as terrestrial (dog, pig, snake, mongoose, *etc.*) predators that caused considerable damage to the eggs of Yellow-wattled Lapwing (Fig. 5). It was not always possible to identify the predator. However, direct observations of predators attacking nests revealed that ground predators caused the loss of complete clutches (n=4), while aerial predators caused partial losses (n=5). This could be due to the reason that nesting pairs were generally unable to distract the large ground predators from the nests once they had been located. Aerial predators, however, were attacked more vigorously, and persistently, and parents often did not let them predate on the complete clutch.

Fig. 5. Predated (partially-eaten) egg of the Yellow-wattled Lapwing in the study area.

Corvids were the major aerial predators of Yellow-wattled Lapwing nests in the study area, and maximum instances of aerial encounters occurred between them and the lapwings. Corvid predation on ground-nesting birds is well documented (Elliot 1985; Parr 1993; Kis *et al.* 2000; Hart *et al.* 2002). We found parent Yellow-wattled Lapwings bold enough to distract most of the aerial predators like House Crow *Corvus splendens*, Jungle Crow *C. macrorhynchos*, Greater Coucal *Centropus sinensis*, and Black Kite *Milvus migrans* from their nests. However, attacks by a group of crows or a single Shikra *Accipiter badius* were difficult to deal with.

Other than such predatory pressures, nests of ground-nesting birds are prone to being damaged by grazing animals (Beintema & Muskens 1987, Hart *et al.* 2002) and human beings (Pfister *et al.* 1992, Gill *et al.* 2001, Fletcher *et al.* 2005).

In 2006 we observed a herd of grazing goats and sheep trampling three eggs in a nest. Also, for a number of times parents were observed aggressively threatening the grazing animals with loud alarm calls near their nests. According to Shrubb (1990) grazing animals may depress the breeding success of birds that settle on ground by disturbing the incubating adults thereby increasing the risk of egg loss by either predation or desertion. It has also been argued that the presence of livestock deters lapwings from settling on the ground for nesting (Berg *et al.* 1992; Elliot 1985). Hart *et al.* (2002) found that the breeding densities of Lapwing *V. vanellus* negatively correlated with the presence of livestock, and they suggested the exclusion of livestock from some areas as a desirable option in order to increase nesting success of Lapwings.

It has been suggested that human threats to ground-nesting birds, are either direct *i.e.*, damage to nest contents or young, or indirect *i.e.*, habitat destruction (Jayakar & Spurway 1968; Santharam 1995; Fletcher *et al.* 2005). In one instance, a boy who was playing cricket in the study area, unintentionally, damaged a nest of Yellow-wattled Lapwing (containing four eggs). We did not find the problem of habitat destruction affecting the nesting biology of Yellow-wattled Lapwing in our study area.

We observed two instances of hatching failure in Yellow-wattled Lapwing. Un-hatched eggs remained in the nest even after the parents had moved from the area. Hatching failure due to infertility or embryo mortality is a potentially important cause of reduced breeding success in birds, and as in the present case, has also been reported in other ground nesting birds (Byrkjedal 1987; Davis 1994).

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Brown-breasted Flycatcher *Muscicapa muttui*: a new record for Gujarat

J. K. Tiwari & Maulik Varu

Tiwari, J. K., & Varu, M., 2010. Brown-breasted Flycatcher *Muscicapa muttui*: a new record for Gujarat. *Indian Birds* 5 (5): 142.

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On the Indian Subcontinent the Brown-breasted Flycatcher *Muscicapa muttui* breeds in north-eastern India, and winters in south-western India, and Sri Lanka (Grimmett *et al.* 1998).

On 24 October 2007 Hans and Magda Sigg (Swiss birders), and the first author spotted a Brown-breasted Flycatcher in the groves of Pingleshwar temple (23 5'N 68 48'E), located on the southern coast of Kachchh, Gujarat (India).

The flycatcher had a white throat, brown breast-band, flesh-coloured legs, and yellow lower mandible, as described in Kazmierczak (2000). Photographs of the bird were sent to Bill Harvey, Uffe Sørensen, and Krys Kazmierczak, who confirmed the identification (*pers. comm.*, November 2007). There appears to be no record of this species from Gujarat (Rasmussen 2005).

J. K. Tiwari

Brown-breasted Flycatcher *Muscicapa muttui*, Pingleshwar, Gujarat

Maulik Varu later reported (24 October 2008) this species from Chaduva reserved forest in Kachchh, Gujarat, which is *c.*60 km from Pingleshwar; participants of Bombay Natural History Society's nature camp at Chaduva also spotted one on 19 December 2009. These records from Kachchh, besides being an addition to the avifauna of Gujarat state, greatly extend westward the known distribution of the Brown-breasted Flycatcher. In the absence of more and regular sightings, it would be prudent to suggest that the above sightings are of vagrant birds. However, birdwatchers need to be alert to the possibility of these birds occurring towards the west of their known migratory route in peninsular India.

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Birds of Sirumalai, Tamil Nadu: 1980–2009

Kevan Bundell

Bundell, K. 2010. Birds of Sirumalai, Tamil Nadu: 1980–2009. *Indian Birds* 5 (5): 143–145.
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Introduction

This paper reports the birds observed in Sirumalai (Little Hills) in the Dindigul district of Tamilnadu by the author in the years 1980, and 2009. It includes observations reported by Swami (2006), and additional reports by local informants to the author in 2009. It also makes reference to a list of the birds of the Palani Hills published by the Palani Hills Birdwatchers Society[1].

The author was privileged to stay in the village of Sirumalai Palaiyur for a period of eight months, from January to August, in 1980, and to return for a period of five days in January 2009.

In geological terms it would seem that Sirumalai is one of the southernmost outposts of the Eastern Ghats.[2] However, in terms of its location, it is close to the Western Ghats, and more particularly to the spur of the Palani Hills, from which it is separated at the narrowest point by a distance of only 12 km or so. Although Sirumalai has been studied in some detail in terms of its flora (Pallithanam, 2001; Karuppusamy *et al.* 1999; Kottaimuthu *et al.* 2008), there seems to be little of substance published on its fauna in general or, other than Swami (2006), on its birds in particular.

Sirumalai lies to the north of Madurai, and to the south of Dindigul. The surrounding plain lies at an average height of about 300 m. Sirumalai, roughly speaking, consists of an outer ring of hills at an average height of about 1,000 m, though with a number of peaks exceeding 1,350 m, and a central bowl at about 700 m. The hills rise more or less abruptly from the plain in the north, west, and south while tapering away into low hills to the east. Much of the hills are reserved forest, including areas of more or less natural dry evergreen and semi-evergreen forest; some is coffee, and other plantation, often with mature, planted tree cover; and the remainder is cultivated by local smallholder agriculturalists or larger landowners. Three main streams run through the hills, and down to the plains. Sirumalai receives its only significant rainfall between October and December with the NE Monsoon.

Environmental changes: 1980–2009

There has been a noticeable increase in forest cover in Sirumalai since 1980, particularly in the interior. This is despite some recent clearance for new farms, including for the growing of cut flowers. This increase is presumably at least partly the result of the efforts of the forest department. It is certainly the case that timber is no longer being extracted by the lorry-load, often illegally, to the extent it was in 1980. It may also be due in part to older small holdings, many of which were recently cleared in 1980, now having more trees, both for fruits, and to provide shelter for growing coffee. The arrival of a viral disease of bananas in the late 1980s or early 1990s may also have contributed. Sirumalai is locally well known for its small, sweet hill bananas, which were grown both by smallholders and in monocrop plantations. Unlike coffee, the bananas do not require shade, and their cultivation therefore led to clearing of forest, and scrub. However, banana cultivation is now much reduced. There has also been an increase in forest cover on the Northern-most slopes of Sirumalai, where the only road into the hills winds up from the plains South of Dindigul. However, the remaining outer slopes of the hills remain semi-denuded as a result of firewood collecting by people from the surrounding villages on the plains.

Identification, naming & listing

In the table below, a full list of the birds of Sirumalai, both, reported by others, and observed by myself, is given in the first column, following Manakadan & Pittie (2002). The additional columns require further explanation:

When I arrived in Sirumalai in January 1980, on my first visit to India, from the UK, I was a reasonably experienced birdwatcher in terms of UK birds, but I had no illustrated field guide to Indian birds to assist me with this, to me, new avifauna. Indeed no modern field guide existed at that time and I was not aware of Salim Ali's *The book of Indian birds*, any edition of which would at least have got me started. I did find a copy of Baker & Inglis (1930), but this was hardly illustrated, and was as keen to advise on how to shoot the birds as to help identify them! However, in April 1980 a copy of the then recently published *Collins Handguide to the Birds of the Indian Sub-Continent* (Woodcock 1980) arrived in the post, sent by a friend for my birthday from the UK. I mention all this because, combined with having other work to do on first arrival in Sirumalai, it meant that I did not start seriously identifying the birds I was seeing until April, and I therefore missed most of the birds that were winter visitors to the area. In 2009 I deliberately chose to visit during winter. These facts are reflected in the birds observed, as shown below.

In January 2009 I used Grimmett & Inskipp (2005) as my field guide.

The fifth column lists those birds that are not listed under Swami (2006), nor seen by me. They were identified by two local, adult, informants[3] to whom I showed the illustrations in Grimmett & Inskipp (2005). One would not normally rely on identifications by non-'expert' observers, and indeed a few identifications made were clearly erroneous, for example, the Red Junglefowl *Gallus gallus*. (Another informant, an experienced hunter, confirmed that this was not correct). However, in view of the paucity of reported observations of the birds of Sirumalai I have considered it worth including these here.

With my own observations, I have indicated with a question mark where identification was uncertain.

Winter visitors are indicated thus: (W).

1 http://phbws.org/bph.html; accessed 8 April 2009.
2 http://www.ecoindia.com/ghats/eastern.html.
3 Sri B Parthasarathy of Sirumalai Palaiyur, and Sri G Sethuraj of Sirumalai Podur.

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Table: Birds of Sirumalai, observed and/or reported 1980 - 2009

Species	Bundell Jan–August 1980	Swami (2006)	Bundell Jan 2009	Parthasarthy & Sethuraj Jan 2009
Indian Pond-Heron *Ardeola grayii*			S	
Oriental Honey-buzzard *Pernis ptilorhynchus*			S	
Black-shouldered Kite *Elanus caeruleus*	S			
Crested Serpent-Eagle *Spilornis cheela*			S	
Shikra *Accipiter badius*				S
Black Eagle *Ictinaetus malayensis*	S	S	S	
Mountain Hawk-Eagle *Spizaetus nipalensis*		S		
Common Kestrel *Falco tinnunculus*			S	
Grey Junglefowl *Gallus sonneratii*			S	
Indian Peafowl *Pavo cristatus*			S	
Emerald Dove *Chalcophaps indica*				S
Mountain Imperial-Pigeon *Ducula badia*				S
Rose-ringed Parakeet *Psittacula krameri*	S			
Blossom-headed Parakeet *Psittacula cyanocephala*	S			
Blue-winged Parakeet *Psittacula columboides*		S	S	
Large Green-billed Malkoha *Phaenicophaeus tristis*		S		
Greater Coucal *Centropus sinensis*			S	
Mottled Wood Owl *Strix ocellata*				S
Ceylon Frogmouth *Batrachostomus moniliger*		S		
Great Eared-Nightjar *Eurostopodus macrotis*		S		
White-breasted Kingfisher *Halcyon smyrnensis*			S	
Chestnut-headed Bee-eater *Merops leschenaulti*				S
Hoopoe *Upupa epops*	S		S	
Brown-headed Barbet *Megalaima zeylanica*	S		S	
White-cheeked Barbet *M. viridis*		S	S	
Coppersmith Barbet *M. haemacephala*	S		S	
Common? / Lesser Golden-backed Woodpecker *Dinopium javanense / benghalense*	S		S	
Heart-spotted Woodpecker *Hemicircus canente*				S
Indian Pitta *Pitta brachyura*				S
Common Swallow *Hirundo rustica* (W)			S	
Large Pied Wagtail *Motacilla maderaspatensis*				S
Grey Wagtail *Motacilla cinerea* (W)			S	
Scarlet Minivet *Pericrocotus flammeus*	S		S	
Common Woodshrike *Tephrodornis pondicerianus*	S		S	
Red-whiskered Bulbul *Pycnonotus jocosus*	S		S	
Red-vented Bulbul *P. cafer*	S		S	
Asian Fairy Bluebird *Irena puella*	S		S	
Malabar Whistling-Thrush *Myiophonus horsfieldii*		S		
Orange-headed Thrush *Zoothera citrina*	S			
Oriental Magpie Robin *Copsychus saularis*		S	S	
White-rumped Shama *C. malabaricus*				S
Indian Robin *Saxicoloides fulicata*			S	
Indian Scimitar-Babbler *Pomatorhinus horsfieldii*	S			
Jungle Babbler *Turdoides Striatus*	S		S	
Common Tailorbird *Orthotomus sutorius*				S
Greenish Warbler? *Phylloscopus trochiloides* (W)			S	
Nilgiri Flycatcher *Eumyias albicaudata*		S		
Grey-headed Flycatcher *Culicicapa ceylonensis* (W)				S

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Table: Birds of Sirumalai, observed and/or reported 1980 - 2009

Species	Bundell Jan–August 1980	Swami (2006)	Bundell Jan 2009	Parthasarthy & Sethuraj Jan 2009
Asian Paradise Flycatcher *Terpsiphone paradisi*	S		S	
Great Tit *Parus major*	S		S	
Velvet-fronted Nuthatch *Sitta frontalis*	S		S	
Purple-rumped Sunbird *Nectarinia zeylonica*			S	
Oriental White-eye *Zosterops palpebrosa*	S			
White-throated Munia *Lonchura malabarica*				S
Spotted Munia *L. punctulata*	S		S	
Black-headed Munia *L. malacca*				S
Common Myna *Acridotheres tristis*			S	
Black-headed Oriole *Oriolus xanthornus*		S		
Black Drongo *Dicrurus macrocercus*	S		S	
Bronzed Drongo? *D. aeneus*			S	
Greater Racket-tailed Drongo *D. paradiseus*	S		S	
Ashy Woodswallow *Artamus fuscus*	S			
Indian Tree Pie *Dendrocitta vagabunda*	S		S	
House Crow *Corvus splendens*			S	
Jungle Crow *C. macrorhynchos*			S	

Comments and comparison: 1980–2009

As an indicator of confidence in the above observations it may be mentioned that all but three of the species listed above, including all those locally reported, also appear in the list of birds of the Palani Hills published by the Palani Hills Birdwatchers Society. This list covers the neighbouring upper and lower Palani Hills but does not include observations from Sirumalai[4]. The three species not mentioned are the Ceylon Frogmouth *Batrachostomus moniliger*, the Great Eared-Nightjar *Eurostopodus macrotis*, and the Mountain Hawk-Eagle *Spizaetus nipalensis*, listed by Swami (2006)—all of which could be difficult to distinguish from similar species, which *are* listed (e.g., the latter from the Oriental Honey-buzzard *Pernis ptilorhynchus*).

The Malabar Parakeet *Psittacula columboides* and the Nilgiri Flycatcher *Eumyias albicaudata* – reported by Swami - are endemic to the Western Ghats[5]. This emphasises the avifaunal, if not geological, affinity of Sirumalai to this range rather than to the Eastern Ghats.

Unsurprisingly both, House *Corvus splendens*, and Large-billed *C. macrorhynchos* Crows are present in Sirumalai. However, in 1980 there were apparently no crows in the hills, and certainly none in or around the main settlements. This was not only observably true but was also well known to the local people, who held that it would be inauspicious, should a crow appear. Crows of both species were of course common on the surrounding plains at that time.

This is clearly not a complete list of the birds to be found in Sirumalai. Other than where indicated, my own observations are restricted to what I could confidently identify, so that, for example, I have omitted the swifts and martins, which accompanied the Common Swallows daily during my visit in 2009.

In other words, more work remains to be done.

Mammals

Although this is an article on the birds of Sirumalai (in a journal devoted to birds), given the paucity of available information on the fauna of these hills in general, it would seem remiss not to mention the animals observed, although most have been previously reported.

Sirumalai is well known as a home of the endangered Slender Loris *Loris tardigradus lydekkerianus*[6], which I did not observe, but was reported to me by local informants in 1980. However, in 2009 I did observe another endangered species, which is known to be present in Sirumalai, the Grizzled Giant Squirrel *Ratufa macroura*[7].

In 1980 I also observed Common Langur *Presbytis entellus*, Bonnet Macaque *Macaca radiata*, and Indian Porcupine *Hystrix indica*, and in 2009, Bonnet Macaque again, as well as Gaur *Bos gaurus*.

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4 Dr A David Ravindran, PHBWS President, personal communication.

5 BirdLife EBA Factsheet 123, Western Ghats http://www.birdlife.org/datazone/ebas/index.html?action=EbaHTMDetails.asp&sid=125&m=0

6 http://dindigul.nic.in/forest.htm

7 ibid

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—Postcard from Trinidad and Tobago—
Tropical field biology—a new course at the University of Arkansas, Fort Smith

Ragupathy Kannan

Kannan, R. 2010. Postcard from Trinidad and Tobago: Tropical field biology—a new course at the University of Arkansas, Fort Smith. *Indian Birds* 5 (5): 146–147.

What is the best way to introduce biology students to the wonders of birding in tropical America without overwhelming them with its diversity? Ideally, find an island very close to the mainland with key representative habitats and bird families, but with limited numbers of species. Ensure the logistics are conducive, avoid strenuous hikes and provide ready access to good food and drinks. Choose an English-speaking and politically stable country with knowledgeable local guides to make it easier and safer for American students.

Sounds like a tall order? Not really. Those conditions fit Trinidad and Tobago, a delightful little island nation just 10 kms from Venezuela. That's exactly why I chose this as the venue for my new Tropical Field Biology course. At 4,904 kms^2—about the size of Goa—it has the most number of bird species *per unit area* for any country in the world (234 species per 2,600 km^2, compared with about one species for the same area in India). That means you don't have to travel a lot to find new birds—perfect for the novice.

Ten students and I were pampered for a week (May 2009) at the world famous Asa Wright Nature Center (AWNC), a set of rustic cabins around a British-era bungalow nestled in the lush Arima Valley of Trinidad. From its legendary verandahs, oft mentioned in birding websites, we were treated to a panoramic view of the verdant tropical forest-clad valley that slopes away into the horizon. Neotropical specials like toucans, tanagers, antbirds, oropendolas, bananaquits, honeycreepers, motmots, and euphonias abound in the valley. Many of them ventured within arm's reach of the visitors on the verandah, attracted by an abundance of bird food and baths. Indeed, if there is the perfect place to start your forays into the new world tropics, this is it.

For ease of birding, no place in my experience compares to AWNC. You relax in the comforts of the verandah (where food, libations and sofas abound) and make a huge dent in your species-to-see list. Or enjoy the antics of the dozen or so species of hummingbirds ranging from tiny coquettes with stunning colors and crests, to large jacobins and hermits that zoom in and out as blurs, constantly harrying each other with territorial zeal. In the afternoons when the frenzy of bird activity wanes, you interact with the apparently omniscient local guides who are always at hand. Or scan the skies above the valley for white hawks and swallow-tailed kites or any of the myriads of other raptor species that ride the thermals. And there is always an agouti (a large rodent) or a tiger lizard (a *Varanus*-like monitor) to break any monotony.

Each day, at the crack of dawn, AWNC staff load the bird feeders copiously with bread, fruit, and nectar. This regular feeding, coupled with the plethora of bird attracting flora in the vicinity of the verandah means that the period between 0600 hrs and 0700 hrs can yield over 50 bird species spread over a gamut of bird families, all enjoyed over steaming cups of fresh-brewed locally grown and ground coffee.

One of the highlights of the week was the hike to a nearby riparian grotto to see the only nocturnal fruit eating bird in the world, the oilbird. These birds are also known for their echolocation abilities that enable them maneuver through dark caves where they roost and nest. Also, along one of the immaculately maintained trails that crisscross the property, we were treated to the extraordinary sight of two species of manakins displaying at their leks. So fixed are these leks that they are indicated by big, informative, and permanently rooted banner boards, and wooden fences keep visitors on the trails. The bearded bellbird (a cotinga) site too was similarly posted. And guides led us to see a broken stump on a dead tree, which upon close inspection morphed into a potoo, a nightjar-like master of camouflage and deception (*"I see the stump, Dr. Kannan, but where is the bird?!"*). One gets the feeling of being in a zoo, and we constantly had to remind ourselves that the birds are completely wild denizens of the area!

In our quest to cover as many habitats as possible, we spent one evening boating in the mangrove swamps near Port of Spain (the capital) and saw hundreds of scarlet ibises—the national emblem of Trinidad, proudly featured on their flag, currency notes, and coins. These gaudy birds derive their hues from a crustacean they consume in prodigious quantities. Many a zoo in the past has realized the hard way that the colours fade when they are not given that particular shrimp to eat. Apart from hordes of other mangrove and coastal specialties like bi-coloured conebills and black-crested antshrikes, we were also blessed with views of Cook's tree boas and silky anteaters, both coiled and asleep amongst mangrove branches while our boat glided below.

The *grand finale* was our night adventure on a remote forested beach where we witnessed the ancient ritual of leatherback sea turtles coming ashore to nest. We saw four massive females crawl out of the ocean, prepare their nests and lay up to 80 eggs each, bury them and then return to sea leaving tracks more than six feet wide in the sand. The sight of these half-ton creatures emerging from the water in the darkness was awesome. Students were able to walk up to them and make observations. Naturalists from Nature Seekers, a local NGO that has done commendable work on conserving these giants, served as guides. They stapled and tagged their flippers and injected electronic chips in the shoulder muscles to track them. Two of the females were returnees, having nested earlier that season (with their remarkable sperm storage ability, they could nest up to five times in one season, with each clutch sired by different males). Coincidentally, Nature Seekers'

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work was featured in that month's (May 2009) *National Geographic*. The article was an invaluable teaching tool in one of our readings and discussions on the verandah.

Students returned to the USA after getting to know the major bird families of the Neotropics and an overall feel for tropical nature, without the sense of being flooded with too much information. Above all, their curiosities have been piqued. Some of them are planning to return to Trinidad for post-graduate research. At least one of them appears to be hooked to bird photography and another is taking daring tentative steps towards taxonomic botany. The Tropical Field Biology course is off to a good start.

Recoveries from the *Newsletter for Birdwatchers* (1970)—23

Zafar Futehally

Futehally, Z. 2010. Recoveries from the *Newsletter for Birdwatchers* (1970)—23. *Indian Birds* 5 (5): 147–148.
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In my previous column I had said that 1970 was a year in which conservation and natural history activities gathered a new momentum mainly because of the meeting of the IUCN General Assembly, which took place in November 1969. The *Newsletter* too received a spate of good articles in that period. I have reproduced some from the January 1970 issue, and here is another by our diplomat/ornithologist, Sudhir Vyas, who has featured in this column before.

Incidentally I was asked to give a talk on conservation to the IAS probationers at the National Administrative Institute in Mussoorie at the time when Sudhir was in the institute. Later he offered to take me for a bird walk, which I declined because of an alternative offer from the equerry of the riding club to take me out for a canter. Horses and birds remain my passion in equal measure.

The birds of Mussoorie

Sudhir Vyas

"The first bird, which intrudes upon your peace in Mussoorie, is not the chirpy sparrow, not the garrulous crow, but that rough and ready champion of song, the Himalayan Whistling Thrush. It was everywhere in the woods, on the open hillsides, even in the bazaar. Its pleasant song was a regular feature of both day and night. But apart from this I saw very few thrushes. I saw the Blueheaded and Chestnutbellied Rock Thrushes occasionally. The Greywinged Blackbird was often heard singing, but being shy, was rarely seen. During the last week of our stay, however, a male took up quarters in our garden and delighted us with his song.

"An amusing incident took place one day, when I descended into the thorny undergrowth on hearing what sounded like a puppy. But no puppy was to be found. Instead, three Blue Magpies fluttered off from a bush. I gained a wise experience—always test for Blue Magpies before diving after unfamiliar noises—and paid for it by quite a few scratches. Redbilled Blue Magpies were, incidentally, very common. A party of nearly 20 frequented the municipal Gardens. On the contrary I never saw the Yellowbilled species.

"My exhilaration knew no bounds when I saw a Sirkeer Cuckoo at 6500 feet. It declined considerably however on reading in Whistler that they are often found up to '6000 ft and even occasionally higher.' It was much less rufous in colour than the ones I saw at Poona. Indian, Common, and Himalayan cuckoos were often heard. I once heard the 'Brainfever' of a Hawk-cuckoo but I could not find it.

"A lovely place for birds is the Kamptee Road. Here I once saw a Himalayan Barred Owlet feeding its brood of three. I once heard the Himalayan Scops Owl's double whistle at night but I could not find it. On another occasion, I saw a nightjar fluttering along at dusk but it was silent and could not be identified. Kokla Green pigeons were common along the Kamptee Road and they often fed on berry bushes close to the ground, thus providing an unobstructed view of themselves. They looked beautiful with their orange breasts and maroon backs. Kaleej pheasants too were fairly common here.

"A great disappointment was the paucity of hawks in Mussoorie. The Kestrel was the commonest falcon and a pair had a nest on a high ledge on Gun Hill. A small falcon was seen twice in forest, and I think it was a Hobby. On another occasion I saw a large peregrine-like falcon, but it had pale underparts. What could an Eastern Peregrine be doing here in June? I saw a Shikra once but no eagles at all. There was a refuse dump in Mussoorie where large number of Scavenger Vultures, Large Indian Kites and a Lammergeier or two fed on rubbish. A number of Grey Drongos also frequented this place. Could it be due to the flies attracted to the rotting refuse?

"The Redwinged Shrike-babbler was much commoner than what I had expected. I once saw a family party on the 16th of June with two young. They often associated with Treepies, Drongos and Dark Grey Cuckoo-shrikes. I also saw once what I think was a female Maroon Oriole.

"A Hoopoe and a huge colony of House Swifts had nests in the remains of the 'Standard Skating Rink' on the Mall which burnt down in 1968 and by courtesy of the municipality is still standing. I hope it survives long enough for the swifts to raise their young. Blyth's Whiterumped Swifts arrived in some numbers about the middle of June. A little later Whitethroated Spinetails and Alpine Swifts also made their appearance. Shortbilled Minivets had finished breeding by June and could be seen in family parties.

"The Great Himalayan Barbet was common in the jungles as were the Scalybellied and Blacknaped Green woodpeckers

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and the Brownfronted Pied Woodpecker. The Himalayan Pied Woodpecker was rare and an interesting discovery was the Lesser Yellownaped Woodpecker.

"I must admit however that there were quite a few disappointments too. From books I had formed the impression that hills would be teeming with Laughing thrushes. What a shock I received to see only two species—the Streaked and the Whitethroated. Even the latter was by no means common. A few rather pale Redrumped Swallows, which nested under bridges, and some seedy looking House-martins were the only swallows I saw. There was hardly a Tree-warbler in the area. I saw one—a plain brown and buff one with no wing bar and a pinkish beak, which refused to utter a sound and could not be identified. I left it in disgust. The Greyheaded Flycatcher-Warbler was, however overwhelmingly abundant. I saw only two Yellowbacked sunbirds and a few Firebreasted flowerpeckers and Black bulbuls. Neither did I see any Hill Partridges. The Black Partridge however was common and the hills resounded with their calls in the morning. Another relief was the predominance of the Cinnamon Sparrow over the House Sparrow. Crows (with very harsh voices) were also not common.

"In spite of this it was a very enjoyable outing and I saw over a hundred species of birds in one and half months. I was quite disappointed to return to the sweltering heat and humidity of Lucknow." [Vyas, Sudhir. 1970. Birds of Mussoorie. *Newsletter for Birdwatchers* 10 (1): 4–6.]

The Brown Shrike *Lanius cristatus*

V G Kartha, an engineer in the Bhillai Steel Plant (Central India) kept a close watch on the arrival and departure of this migrant from Eastern Europe, allegedly one of the earliest of our winter visitors and the latest to depart. A very widespread species, reaching as far south as the Laccadives. I have watched this shrike for long periods both around Bombay and in Kihim, and what Kartha writes rings a bell. "It is usually so motionless that it is difficult to detect. The occasional movement it permits itself is of the head, which swivels this way and that, keeping a sharp look-out for "jay- walking" insects and worms … It takes off so suddenly that you blink in your eye-pieces. It flies to the ground, makes a pin-point landing … picks up the insect … and flies back to the same or an adjacent outpost. When on the ground it holds its tail slightly elevated … I have never heard it calling from anywhere close to the ground. It is usually from high up among the leaves or from overhead electric wires. It opens its mouth wide and its whole body and tail vibrates with the effort." [Kartha, V. G. 1970. The Brown Shrike in Bhilai. *Newsletter for Birdwatchers* 10 (1): 2–4.]

Large-tailed Nightjar *Caprimulgus macrurus* sightings in Kachchh, Gujarat, India

Veer Vaibhav Mishra & Ratan Singh

Mishra, V. V., & Singh, R., 2010. Large-tailed Nightjar *Caprimulgus macrurus* sightings in Kachchh, Gujarat, India. *Indian Birds* 5 (5): 148.

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Manuscript received on 24 February 2009.

On 25 December 2008, at 1130 hrs, we were watching birds with M. Coverdale in Phot Mahadev thorn forest of Kachchh (Gujarat, India). We were close to a ravine with *Euphorbia* sp., vegetation growing on the slopes, and a scanty growth of acacia trees. We flushed two nightjars (Family: Caprimulgidae), and upon searching found eight more, all roosting in the ravine.

The nightjars had large, long tails, black and gold scapular stripes, white throat patches, barred breasts, and pale bars on wing coverts (Rasmusseen & Anderton 2005).

V. V. Mishra

Large-tailed Nightjar *Caprimulgus macrurus*

We identified them as Large-tailed Nightjar *Caprimulgus macrurus*. Nigel Cleere (see reference) confirmed the identification of the nightjar.

Large-tailed Nightjar is found in north-eastern Pakistan (Murree Hills), Himalaya, Uttaranchal, Nepal, eastward through the Assam Valley, Orissa, and north-eastern India. This species is known to winter in Madhya Pradesh. There is one record of this species from Gujarat (heard calling by Pranav Trivedi). The present record, where eight individuals of Large-tailed Nightjars were sighted, and photographed in Kachchh, is an important addition to the avifauna of Kachchh, and Gujarat.

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Novel drinking behaviour of a Comb Duck *Sarkidiornis melanotis* in the National Chambal Sanctuary, Uttar Pradesh

K.S. Gopi Sundar

Sundar, K. S. Gopi. 2010. Novel drinking behaviour of a Comb Duck *Sarkidiornis melanotis* in the National Chambal Sanctuary, Uttar Pradesh. *Indian Birds* 5 (5): 149.

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In the National Chambal Sanctuary, I observed several Comb Ducks *Sarkidiornis melanotis* bathing in the Chambal River on the evening of 9 April 2009. One of the ducks next to a bathing individual raised its neck and held its beak open obviously drinking the water splashed high (Fig. 1). Ducks usually drink by scooping up water in its lower mandible and raising the neck allowing the water to run down the neck; I could find no published reference to ducks drinking in this unusual way.

The majority of birds drink water by the scoop-and-tilt-head method. Specialized drinking methods include nectar-feeding using protrusible, grooved, or trough-like tongues (as in Nectariniidae), lapping water with tongues (as in Psittacidae), sucking using the whole beak as a straw (as in all Columbidae, Pteroclidae (Cade *et al*. 1966), rarely in Estrildinae and Sylviidae, and Mousebirds (Cade & Greenwald 1966)), and drinking dew drops from a leaf's surface (Black-chinned Hummingbird *Archilochus alexandri* (Baltosser & Russell 2000)). Pelicans very rarely drink by holding their beaks open in the rain (http://www.stanford.edu/group/stanfordbirds/text/essays/Drinking.html).

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K. S. Gopi Sundar

Fig. 1. One duck's bath water is another one's drink. Comb Ducks in the National Chambal Sanctuary display an unusual behaviour.

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Possible sighting of an Oriental Honey-Buzzard *Pernis ptilorhyncus orientalis*

Samir Mehta

Mehta, S. 2010. Possible sighting of an Oriental Honey-Buzzard *Pernis ptilorhyncus orientalis*. *Indian Birds* 5 (5): 150.
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On 15 February 2009 a pair of raptors was seen soaring, and circling overhead at 1215 hrs, at Rangdhamali (26°52'N 88°73'E), 10 kms north of the town of Jalpaiguri, West Bengal. One bird was photographed, under favorable light conditions. The raptors were observed for 3–5 min before they disappeared over the horizon to the north.

Amit Thakurta

Oriental Honey-Buzzard *Pernis ptilorhyncus orientalis*?

The Oriental Honey-Buzzard is a common, and widely distributed raptor in the Indian Subcontinent. The resident race is *ruficollis*, and there have been a few records of the migratory subspecies *orientalis*, a vagrant, from different regions of India in the remote past (Rasmussen & Anderton 2005).

At first glance my attention was drawn to the length of the wings, which seemed longer than those of 'normal' Oriental Honey-Buzzards seen in India. Also clearly evident was the dark, distinct barring on the under-surface of the body, which is unusual for *ruficollis* (Naoroji 2006). On closer examination of the image, a heavy, broad black gorget was noticed. This is a classic identification characteristic of *orientalis*. The outer primaries below show dark tips grading into paler bases, lacking much contrast. The underwing shows three dark wing-bars across secondaries evenly spaced between the trailing edge and the greater underwing-coverts which are characteristic of female Oriental Honey-Buzzard, as is the tail pattern showing three evenly spaced dark bands in the proximal half of the tail with a sub-terminal dark band framing a broad pale band proximally. From the photographs, the above observations, and the description of *orientalis* in Ferguson-Lees & Christie (2001), I feel that the bird in the photograph is *orientalis*.

Interestingly, while attempting to define the pattern of it's few confirmed records it was noticed that the present sighting falls in the vicinity of a number of previous sightings from Mangphu (West Bengal), Charduar (Assam), and Patna (Bihar) (Rasmussen & Anderton 2005). The Jalpaiguri area is 7°–8°E off the regular migration route to Southeast Asia, and it seems that the most likely cause for the westward vagrancy could possibly be attributed to changes in wind direction, and speed, during the migration period, or the distribution, and abundance of wasps, and bees in the region.

Two systematic studies on raptor migration in the Himalayas (Den Besten 2004; De Roder 1989) did not report sighting *orientalis*.

The migratory route of this Siberian breeder is poorly understood, and documented, unlike that of the migratory *apivorus*, which has been studied by satellite tracking (Higuchi 2005). The only certain diagnostic criteria is measurement of the wingspan of a trapped bird, which makes its field identification challenging.

Acknowledgements

I wish to thank Dr Chaiyan (Thailand) for his pertinent inputs.

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Nesting of Sykes's Nightjar *Caprimulgus mahrattensis* in the Great Rann of Kachchh, Gujarat, India

J. K. Tiwari & Mohammed Dadu

Tiwari, J. K., & Dadu, M., 2010. Nesting of Sykes's Nightjar *Caprimulgus mahrattensis* in the Great Rann of Kachchh, Gujarat, India. *Indian Birds* 5 (5): 151–152.

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Sykes's Nightjar *Caprimulgus mahrattensis* is known to be 'Resident, with some migratory movements. Breeds in Pakistan and Kutch; possibly breeds in Punjab, Saurashtra and Rajasthan, India; winters south to S Karnataka and east to C Uttar Pradesh,' (Grimmett *et al.* 1998). Rasmussen & Anderton (2005) however, record it as 'wintering widely in W India, occasionally reaching environs of Delhi, N Madhya [Pradesh], and Bombay.'

This note presents photographic documentation of the first confirmed nesting record of the Sykes's Nightjar in Gujarat.

Sykes's Nightjar is seen commonly from November to February, along the coastal sand dunes of Kachchh, and in the Banni grasslands, on the edge of the Great Rann in Gujarat. Birds are seen roosting in the clutter of decaying *Prosopis juliflora* where they are perfectly camouflaged in their surroundings. Sangha (*pers. comm.*) has also seen it in open areas with barely any vegetation; on the periphery of the Little Rann. Sightings begin to drop, in Banni grasslands, and other parts of Kachchh from the end of February onwards. I have never heard the Sykes's Nightjar calling, in all my 15 years of field work in Kachchh.

Nesting

Sir Geoffery Archer collected a fledgling male Sykes's Nightjar on 26 July 1939, from Charwa forest, near Bhuj, Kachchh, making it 'the southernmost breeding record, the nearest being in Sind,' (Abdulali & Hussain 1968). Grimmett *et al.* (1998) might have extrapolated from Sir Geoffery's specimen about it's breeding in Rajasthan, but there are no published breeding records from that state/region. However, Per Undeland, and Harkirat Sangha observed an active nest of the Sykes's Nightjar on 8 May 1998, on the sandy dry bed of the Sutlej River about 3 kms downstream of Harike barrage, Punjab (Sangha, *pers. comm.*).

On 3 March 2009, at 1600 hrs, the active nest of a Sykes's Nightjar *Caprimulgus mahrattensis* (Figs. 1 & 2) was spotted on the edge of the Great Rann of Kachchh, in Kachchh district (Gujarat, India). The nest was on open, bare ground, with two cryptic eggs lying on the baked mud of Banni (Fig. 3).

Another nest was found on 4 May 2009, near Bhagadia village in Banni grasslands—with two chicks.

J. K. Tiwari

Figs. 1 & 2. Sykes's Nightjar *Caprimulgus mahrattensis* on nest in Banni grasslands, 4 May 2009.

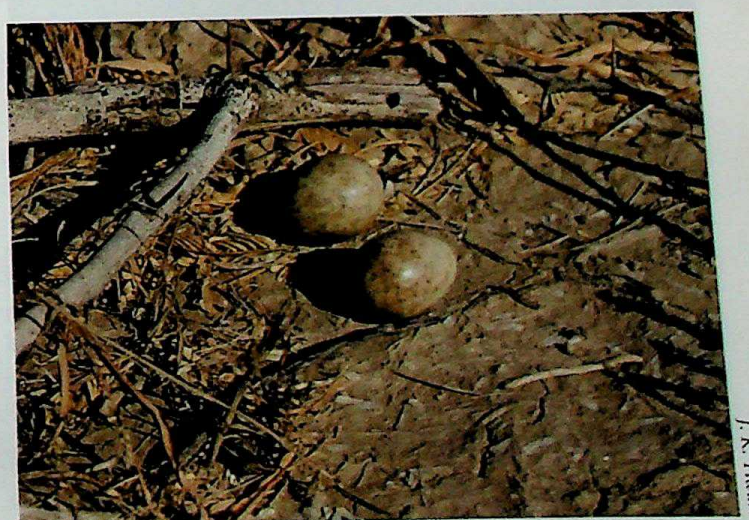

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Fig. 3. Cryptic eggs of Sykes's Nightjar *Caprimulgus mahrattensis* in Banni grasslands.

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J. K. Tiwari

Sykes's Nightjar *Caprimulgus mahrattensis* chicks in nest in Banni grasslands, 4 May 2009.

Various ornithologists have found eggs of Sykes's Nightjar in March–April in Sind (Pakistan), in habitat similar to that in the Great Rann of Kachchh (Roberts 1991).

Since the breeding of Sykes's Nightjar is semi-colonial (Roberts 1991), birdwatchers in north-western India should be alert during March–May for sight records, calls, display flights, and hopefully, more nesting records.

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A study on the habits of Oriental Magpie-Robin *Copsychus saularis*

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Sreekar, R. 2010. A study on the habits of Oriental Magpie-Robin *Copsychus saularis*. *Indian Birds* 5 (5): 152–153.
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Introduction

Oriental Magpie-Robin *Copsychus saularis* is one of the most familiar birds in southern India, and yet there is very little mentioned about its habits in literature (Bonnell 1934). Robins mostly feed on invertebrates and there are records of them feeding on geckos (Sumithran 1982; Saxena 1998). Here I present results of a study conducted in the months of June–July 2008 on habitat use, food habits, and song of Oriental Magpie-Robins in the property of the Madras Crocodile Bank Trust / Centre for Herpetology, Mammalapuram, Tamil Nadu, India.

Fig 1. Map showing the territory of a Magpie Robin pair in Madras Crocodile Bank. Rectangle enclosed in a black Line=territory; Red dot=nesting site; Yellow dots=common feeding sites; Blue dot=common singing site. [Source of map: Google Earth.]

Study area

Madras Crocodile Bank Trust (12°44′35″N 80°14′23″E; MCBT) forms an expanse of about 3.4 ha of semi-wilderness along the coast of the Bay of Bengal in the state of Tamil Nadu (southern India). The characteristic feature of MCBT is its overlap between the habitat, which is woodland and wetland. 62 species of birds are recorded from MCBT, and it is also home to 23 species of birds, which reside, and breed within the park limits. Little Cormorant *Phalacrocorax niger*, Little Egret *Egretta garzetta*, Median Egret *Mesophoyx intermedia*, and Black-Crowned Night Heron *Nycticorax nycticorax* breed in large numbers on the trees in MCBT.

Methods

The robin study in MCBT was carried out regularly, on a daily basis, during the study period. Spot-mapping technique (Ralph *et al.* 1993) was employed to study the birds. All observations were made using a pair of 10x50 binoculars. Graphs were generated using MS Excel software.

Home range

Home range is calculated by circling the sightings of the birds around the distance, and the area is calculated by drawing

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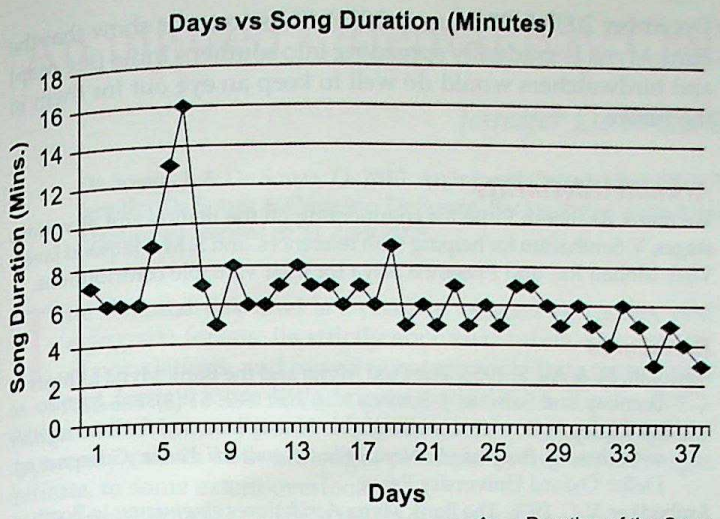

a convex polygon. Mean home range of the birds during the breeding season was *c.* 1.3 ha.

The nest site was 2.5 m above the ground, in a tree hole very close to the kitchen, and the guesthouses. The common singing site was *c.* 50 m from the nest site, on a bamboo shoot, where the male sang for an average of six minutes everyday, between 1730–1815 hrs, with the female murmuring below.

Breeding behavior

Copulation was seen before and after the song. The time period of the song is high during copulating period, and was observed to go down after the chicks are hatched.

Food habits

The nesting pair was seen preying on dragonflies in flight, mostly the common picture-wing *Rhyothemis variegata*, praying mantis larvae in the leaf litter, and other invertebrates. They were also seen preying on house geckos *Hemidactylus* species. Geckos like *H. brookii*, and *H. leschenaultii* formed an easy target for the robins, when on the floor. All sightings of geckos getting picked up were in the kitchen's corridor.

Discussion

The duration of the song could have reduced in consideration of hatchling security and food. The duration of the song may advertise the quality of the male for the female. More studies should be done to understand their behavior.

Acknowledgements

I thank Siraj A. Taher, C. Srinivasulu, Aasheesh Pittie, Nikhil Whitaker and staff of Madras Crocodile Bank Trust for their encouragement and sustained support; Nina Simon and P. Hopeland for their suggestions and help in the field.

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Range extension of Bank Myna *Acridotheres ginginianus* in southern India with new records from Andhra Pradesh

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Taher, H., Sreekar, R., Anguru, S. & Taher, S. A. 2010. Range extension of Bank Myna *Acridotheres ginginianus* in southern India with new records from Andhra Pradesh. *Indian Birds* 5 (5): 153–154.

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The Bank Myna's *Acridotheres ginginianus* range is considered to be limited to the plains of northern India between the outer Himalayas in the north, and the Vindhya Range in the south, and from the North-west Frontier Province and the Sind region to Bengal (Oates 1889; Baker 1926; Marien 1950; Ali & Ripley 1983). The records from Nashik (Ball 1878; Bhaskar 1981), Mumbai (Abdulali & Ali 1953; Ambedkar 1976), Pune (Gole 1984), Goa (Lainer 1999), and Dharwad (Vijay Mohan Raj, verbally, 25th March 2009) are considered to be the southern-most in south-western India and the records from Visakhapatnam (Sankar 1976; Taher & Pittie 1989), Srikakulam (S. M. Maqsood Javed, verbally, 20th March 2009), and Chennai (Raj 1914; Prasanna Sriya, verbally, 25th March 2009) are considered to be the southern-most in south-eastern India. Gole (1984) suggested that the records from Pune were, at that time, the southern-most record of the species. Most of the authors of the southern records believe that the populations of these birds have spawned from escaped cage birds.

The species was considered to be extremely partial to well-watered terrain in the early 1950's (Marien 1950) but the Bank Mynas have adapted to the new 'urban' niche in the early 1980's and were seen piggy-backing confidently on the roof, the front bonnet or the rear-end of the food carriers of vehicles—this is considered as a new adaptation of its cattle riding habit (Ripley 1983).

On 15 January 2006, the second author (RS) sighted these birds on the way to Borra caves (18°16'52"N 83°02'30"E; 700 m a.s.l.) in the Ananthagari Hills of Vishakapatanam district, Andhra Pradesh state. They were foraging by the roadside.

On 25 January 2009, we had gone birdwatching to Gudivadalanka in Kolleru Wildlife Sanctuary (16°39'00"N 81°13'00"E), Andhra

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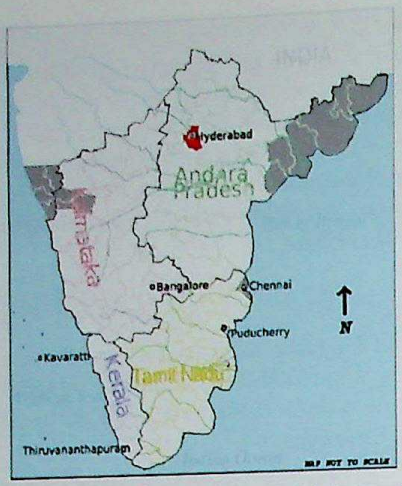

District-wise spread of Bank Myna *Acridotheres ginginianus* in southern India (Source: Wikimedia)

Grey – Bank Myna distribution in southern India
Red – Unconfirmed record; **Black** - State borders

Pradesh. This trip was primarily for the Asian Waterfowl Census in Kolleru. As we drove towards Gudivadilanka, the left side of the road was marshy with water level less than 0.3 m and on the right side there was an *Eichhornia* bed in deeper water. On the right, we noticed a few domestic buffaloes swimming towards us with Bank Mynas comfortably riding on their backs. The birds flushed on to an electric pole even as we took pictures. Fourteen were counted and were distinguished from the Common Myna *A. tristis* by their darker colouration, smaller size, orange bill and orbital skin and a crest-like tuft of feathers on the forehead. The fist author (HT) recollects sighting this species in company with Jungle Myna *A. fuscus*, and Asian Pied Starling *Sturnus contra* at Kolleti Kota in the sanctuary on 25 January 2008.

On 15 March 2009, RS spotted *c.* 20 Bank Mynas in Lammasingi (17°48'52"N 83°29'00"E; 900 m a.s.l.) in East Godavari district, Andhra Pradesh. These birds were sighted along with Jungle Myna, and Asian Pied Starling close to a large open well, which is a source of water for the village.

There is also an unconfirmed report from the Sanjeevaiah Park, Hyderabad, 25 December 2007 (Ashwin Naidu, verbally, 25 December 2007 & 28 January 2009). These records show that the Bank Myna is gradually spreading into southern India (see map) and birdwatchers would do well to keep an eye out for them in the future.

Acknowledgements

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— *In memoriam* —

Syed Ahmed Hussain 1944–2010

— *In memoriam* —

Siraj Ahmed Taher 1942–2010

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An injured Oriental Bay Owl *Phodilus badius* in Goa, India

Jennifer De Souza & Qupeleio De Souza

De Souza, J. & De Souza, Q. 2010. An injured Oriental Bay Owl *Phodilus badius* in Goa, India. *Indian Birds* 5 (5): 155.
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Manuscript received on 24 April 2009.

The Oriental Bay Owl is a resident of semi-evergreen, and evergreen forests. Its strictly nocturnal habits, low density of populations, and secretive nature contribute to its status as one of India's more little known owls (Ali & Ripley 1987). Within India it occurs in two widely separated geographic regions, apparently rare in both although, perhaps, as this report might indicate, to some extent overlooked.

The northern race *Phodilus badius saturatus* is known to extend throughout the Himalayan foothills from Sikkim to south-eastern Arunachal Pradesh, and the southern Assam Hills. Two disjunct populations, *P. b. ripleyi* and *P .b. assimilis*, occur in the southern Western Ghats of Kerala/Tamil Nadu, and in the wet and intermediate zones of Sri Lanka, respectively (Inglis 1945; Ali & Ripley 1987; Rasmussen & Anderton 2005). These two southern races are sometimes considered a distinct species, Ceylon Bay Owl *P. assimilis*, on the basis of morphological, and in particular, vocal variations (Rasmussen & Anderton 2005).

Until the early 1990s *P. b. ripleyi* was known only from a single specimen taken at Periasolai (10 36'N 74 40'E) in Kerala's Nelliampathy Hills (Hussain & Khan 1978), following which almost all recorded sightings have been from the Anaimalai Hills (Kannan 1993, 1998; Sugathan & Jacob 1995; Muddappa 1998; Raman 2001). It has therefore long been considered that the distributional range of this species in peninsular India is across a very small section of the southern Western Ghats, although there have been previous extralimital reports from Bandipur National Park (Ahmed & Yekanthappa 1998), and Sirsi (Vasudeva *et al.* 2005), both in Karnataka state.

Here we present, what is almost certainly, the first record of Oriental Bay Owl in Goa, and the northern-most record within the Western Ghats.

At around 0730 hrs on 8 April 2009 an owl was observed roosting on a low branch in Backwoods Camp (15 26'N 74 14'E; 95 m a.s.l.), within the Bhagwan Mahaveer Wildlife Sanctuary (Goa). The bird was immediately identified as an Oriental Bay Owl, this being a distinctive species, and one that we are familiar with. Excellent views were obtained at close range allowing us to view the bird from all aspects, noting the speckled chestnut and golden back, heavily banded wings, and short tail, pale facial disc with dark vertical eye stripes, and clearly defined chestnut cap.

The bird was clearly unsettled, changing its perch occasionally but never moving far. Disregarding its entirely unexpected appearance here, this uncharacteristic activity during daylight hours, in such close proximity to human habitation, was a cause for concern. It soon became clear that the bird was suffering a facial injury, periodically shaking its head to deter flies, and scratching at the affected area with its foot. At about 0830 hrs the bird flew down onto the ground, clearly weakened, and the decision was taken to capture it to ascertain the extent of its injuries. Once in the hand, closer inspection showed a deep circular would, approximately 1 cm in diameter, adjacent to the bill, infested with maggots, perhaps initially inflicted as a scratch or bite from a prey item. The bird was taken directly to the Goa clinic of International Animal Rescue for treatment, where sadly it succumbed to its injuries during the night. The specimen is to be donated to the collections of the Bombay Natural History Society following taxidermy.

David Napier

The injured Oriental Bay Owl *Phodilus badius*

The core areas of the Bhagwan Mahaveer Wildlife Sanctuary contain pristine, largely unexplored vegetation classified into three main forest types, namely, west coast tropical evergreen, west coast semi-evergreen, and moist deciduous. That an Oriental Bay Owl was found in appropriate habitat as far north as Goa raises questions about its status, and wider distribution within the Western Ghats. This region forms part of over 2,200 km² of protected forests in Goa, and neighbouring Karnataka and Maharashtra which, given the pervasion of suitable habitat, may be hosting previously overlooked populations of Oriental Bay Owl, extending its range considerably further north, than has been earlier supposed.

Acknowledgements

Thanks to Dilip Kumbhar, and staff of Backwoods Camp for their assistance, and to Carl D'Silva for carrying out taxidermy. We are particularly grateful to Nikhil Prabhugaonkar, and Aparajita Choudhury, veterinarians at the Goa clinic of International Animal Rescue, for their efforts in examining, and treating this bird.

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Partial albinism in Indian Chat *Cercomela fusca*

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Singh, P. 2010. Partial albinism in Indian Chat *Cercomela fusca*. *Indian Birds* 5 (5): 156.
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The Indian Chat *Cercomela fusca* is endemic to the Indian Subcontinent and is widely distributed all over central India. It is a ground feeding bird and is distributed north of the Narmada River, from Punjab in Pakistan on the west, through the Indian regions of Punjab, Uttar Pradesh, Bihar, and West Bengal; and in the western Himalayan foothills up to an altitude of 1,300m (Wikipedia 2008). The species is slightly larger than a House Sparrow *Passer domesticus* and has brown body colouration with dark brown wings and a blackish tail. It is a sedentary species but shows some local movement (Ali & Ripley 1989). According to Grimmett *et al.* (1998), the species is scarce and very local in northern Pakistan, but Roberts (1992) states that it occurs on the western boundary of Pakistan because this region comprises a flat alluvial plain. *Cercomela fusca* is a peri-commensal in the Thar region, and does not fear human habitation. It prefers rocks, cliffs, large old buildings, and ruined deserted structures (White 1919), and forts and buildings under construction (Singh 2007). The bird builds a unique "cup shaped" nest with pebbles lying on its periphery.

Albinism among birds is not rare and many albino and partially albino species have been reported in literature (Blatter 1906; Baker 1922; Macnamara 1940; Donahue 1963; Ghosal & Ghose 1990; Mahabal & Pande 2006; Pawashe *et al.* 2006; Mehra *et al.* 2009). However, this is the first report of albinism in Indian Chat.

A young partially albino Indian Chat was sighted in the desert town of Bikaner (Rajasthan), with a light yellowish body colour (Fig. 1). In a normal adult Indian Chat, the upper plumage is brown and lower plumage is rufous brown. The wings are darker brown and tail is almost black (Fig. 2). As this albino Indian Chat grew, the 'normal' brown colour appeared on its head, ventral, and anterior dorsal parts. However, its flight feathers and tail remained white and small white patches persisted on its head and other body parts (Fig. 3).

Albino animals have many disadvantages in the wild. They are easier to locate and thus become easy prey. If a predator is albino, it will be easily located by its prey species and might suffer from malnutrition and succumb to starvation. They look abnormal and could be rejected by other individuals of same species. The partial albino Indian Chat that we observed had a very short life span. Its conspecifics and even its parents rejected this abnormal looking bird. The parents chased it away by flying aggressively after it. This lonely bird survived for a few days and may have fallen prey to some predator, as it could not be sighted in the area in spite of concerted efforts to locate it.

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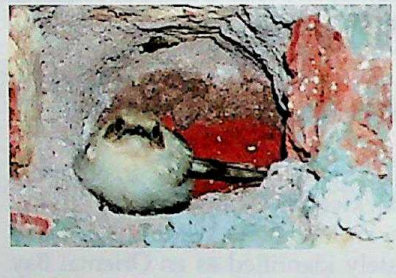

Fig. 1. Partially albino Indian Chat *Cercomela fusca* when young.

Fig. 2. Normal Indian Chat *Cercomela fusca* with dark brown wings and black tail.

Fig. 3. Partially albino Indian Chat *Cercomela fusca* with white tail and feathers.

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New site record of Yellow-throated Bulbul *Pycnonotus xantholaemus* from Andhra Pradesh

R. Sreekar & C. Srinivasulu

Sreekar, R. & Srinivasulu, C. 2010. New site record of Yellow-throated Bulbul *Pycnonotus xantholaemus* from Andhra Pradesh. *Indian Birds* 5 (5): 157.

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The Yellow-throated Bulbul *Pycnonotus xantholaemus* is endemic to peninsular India and is known to occur in Andhra Pradesh (Allen 1908; Subramanya & Prasad 1996; Kumar 1999; Srinivasulu 2003), Karnataka (Ali 1942; Subramanya *et al.* 1991; Karthikeyan *et al.* 1995; Thejaswi 2004; Misra *et al.* 2007), and Tamil Nadu (Nichols 1944; Rao 1995; Karthikeyan 1995; Beisenherz 2004; Thejaswi 2004; Narayan *et al.* 2006), with a few records from Kerala (Kannan 1993; Beisenherz 2004; Thejaswi 2004; Praveen & Namassivayan 2006).

The Yellow-throated Bulbul is considered to be one of the 78 threatened bird species in India (Anonymous 2008). In this note we place on record the sighting of a small population of these birds in Kolluru locality of Papikonda Hills in the northern Eastern Ghats, Khammam District, Andhra Pradesh.

The Papikonda Hills are an unbroken chain of rugged hills and plateaus that spread over an area of about 700+ km² (Javed *et al.* 2007). They possess a typical southern tropical dry deciduous and southern tropical moist deciduous forest types intermingled with scrub (Champion & Seth 1968). The annual rainfall ranges from 900–1,500 mm.

The birds were sighted at an altitude of 600 m while guiding the trekkers onto a hilly slope by making a dry streambed as pathway. The hillock is on the River Pammeleru, a tributary of the River Godavari. Three birds were sighted very close to the canopy along with Red-vented Bulbuls *P. cafer*. A bird was sighted sunning at 1030 hrs on 26.xii.2008, the bird looked very similar to the White-browed Bulbul *P. luteolus* but was differentiated by the distinct yellow on the throat and cheek region, lacking a white eyebrow, light yellow streaking on the underside and yellow barring on the secondaries. The bird had a yellowish-white vent and under-tail coverts.

Subramanya's (2004) prediction of the bird's occurrence in Orissa could well be prophetic as there is a continuous chain of forests from the Papikonda Hills to Chhattisgarh and Orissa.

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First sighting record of Hooded Pitta *Pitta sordida* from Kaziranga National Park, India

Udayan Borthakur & Chatrapati Das

Borthakur, U., & Das, C. 2010. First sighting of Hooded Pitta *Pitta sordida* from Kaziranga National Park, India. *Indian Birds* 5 (5): 158.

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The Hooded Pitta *Pitta sordida* is found from south-western China to Philippines, and New Guinea. In India, the race *cucullata* is a summer visitor to the Himalayan foothills of Himachal to Arunachal, and north-eastern Bangladesh, and perhaps also to Meghalaya, and Nagaland. The darker *abbotti* is found in the Great, and Little Nicobar Islands (Rasmussen & Anderton 2005). It is categorized under 'Least Concern' in the IUCN's Red List 2008.

Udayan Borthakur

Hooded Pitta *Pitta sordida*

Kaziranga National Park (KNP) (26 35'–26 45'N 93 05'–93 40'E) is situated in the floodplain of the Brahmaputra River, in the Nowgaon, and Golaghat districts of Assam, India. A detailed checklist of birds of Kaziranga National Park, with 479 species, has listed three species of pittas, namely, Blue-naped *P. nipalensis*, Blue *P. cyanea*, and Indian *P. brachyura* (Barua & Sharma 1999). Choudhury (2003) lists the Hooded Pitta as a hypothetical species for Kaziranga, 'in view of records from different parts of the Brahmanputra valley.' This is the first report of Hooded Pitta from KNP.

On 2 July 2008, we were on a field trip to the Central Range (Kohora) of KNP, as part of Aaranyak's camera-trapping team for monitoring tiger populations. While proceeding towards Hulalpath Forest Camp, between 1255–1305 hrs, we saw a pitta-like bird flying across the road (26°40.039'N 93°21.706'E). We spotted the bird again, at closer distance, in some forest undergrowth, in a patch of woodland with prominent tree species like *Machilus banbycyna*, with thick undergrowth of *Calamus* sp., and creepers such as *Lea* sp. It was immediately identified as Hooded Pitta, based on its dark head, and brownish crown. We took photographs of the bird (see below), which helped confirm its identity. We observed the bird for about two minutes, before it flew away into the thickets.

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—*A flight down memory lane*— Narcondam Island and its hornbills

Lavkumar Khachar

Khachar, L. 2010. A flight down memory lane: Narcondam Island and its hornbills. *Indian Birds* 5 (5): 159.
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India's environmental problems are many and highly complex. Yet, unhappily, those of us who should know better have been verging on criminal casualness in our approach to conservation issues, often lending tacit support to groups that have their own, often highly political, agendas. The time is over ripe to put our house in order before we, individually and collectively, espouse causes and take on issue-based activism. It is absolutely essential that we prioritize our concerns.

In my opinion, the isolated Narcondam Island, with its endemic Narcondam Hornbill *Aceros narcondami*, merits overwhelming conservation priority. There should be no two opinions on the absolute need to secure this island recognition as one of India's wilderness treasures.

To safeguard its territorial integrity from over ambitious neighbours, the Government of India stationed a police contingent on the island in 1969. To provision the men with "fresh" milk and meat, two pairs of goats were sent in 1976! By 2000, their captive population was about 150 and over 200 had gone feral, grazing to devastation the hitherto undisturbed forest under-story and completely preventing vegetative regeneration. There are reports that areas around the settlement have been cleared for growing vegetables and trees are felled regularly for fuel! The process that has denuded much of the Indian subcontinent of its forest cover has begun here. Figuratively speaking, the kindling that has been set aflame will soon become a blaze and engulf the primeval forest that should be every Indian's pride. That the Indian Government, in this age of environmental enlightenment, has initiated this rather short sighted and thoughtless action simply amazes me. That there has been no outrage expressed by the otherwise very vociferous environmental groups, baffles me and, speaks volumes for the general apathy among us: yes, I include myself among the apathetic.

In 1979 I had sarcastically written in the *Indian Mountaineer*, the Journal of the Indian Mountaineering Foundation, that if the "Sanctuary" surrounding Nanda Devi in the Gharwal (Uttarakhand) Himalayas could not be prevented from vandalism, then India should forget all its commitments to conserving her National Parks, many of which have human activity and user rights for centuries. Those times, however, were different; we had a Prime Minister in Indira Gandhi, who in her imperious manner, simply ordered the mountain area closed.

Today, I throw a similar gauntlet to the Government of India, to declare this island a National Treasure and evolve imaginative strategies for its protection. India's territorial claim over Narcondam Is., I repeat, does not need a posse of policemen with their goats, it can be as effectively asserted by setting up a multidisciplinary research station commanded by a Naval officer. Efficiently regulated ecotourism would help finance research.

The unique island vegetation, specially the large old fig trees, is under continual devastation by recurring cyclones that are so characteristic of the Bay of Bengal, but they were able to hold their own thanks to the vigorous regeneration in clearings created with each large tree that fell. The introduction of goats has adversely affected this regeneration and with each successive cyclone, the aging trees with their cavities will get depleted, without being replaced. It is the availability of tree cavities that determine the optimal breeding population of the hornbills and it is not difficult to visualize a time when they will be unable to breed in sufficient numbers. Without any delay, all goats must be removed and those gone feral, shot by a group of Army sharpshooters detailed on exercise!

Niranjan Sant

Narcondam Hornbill

The multidisciplinary research station should be provisioned with canned food, as is the Indian Antarctic one. Not only should the plant and animal life of the island be strictly preserved, the reefs encircling it should also be protected from all exploitation, barring ecotourism—with conducted and controlled dives among the reefs and nature trails up and around the supposedly extinct volcano; coveted, high value tourist experiences.

However, the volcano on Barren Island is active and frankly, too close for comfort. The recent series of tectonic tremors along the Indonesian island arc, of which the Andaman and Nicobar Islands are extensions, suggests that the endemic Narcondam Hornbills may sooner than later face calamity, especially due to breeding habitat eradication. Lt. Gen. Baljit Singh's note to the Government of India, suggesting the introduction of these hornbills to other uninhabited island/s, deserves our emphatic "Yeah!" provided rigorous science is implemented. I would go a step further and urge that captive breeding nuclei be established in a couple of reputed Indian zoos as well as in prestigious foreign ones so that, should the Narcondam volcano erupt, there would be birds to repopulate the island once it settles down.

Dedication: I would like to dedicate my piece to the memory of late Ravi Sankaran, whose quiet growth as a formidable field scientist, I had the privilege to watch. He spent many wonderful, and relaxed days with me at Hingol Gadh, whenever he visited Saurashtra to check on the Lesser Florican.

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—Correspondence—

Departure of Grey Wagtail Motacilla cinerea from Kodagu

With reference to my letter published in vol. 3 no. 4 July–August 2007 issue of Indian Birds, regarding the arrival of the Grey Wagtail Motacilla cinerea in Kodagu (12°27'N 75°43'E; 1,310 m a.s.l.), the departure dates are very difficult to gather.

Below is my notebook record of when the birds were last seen in my garden.

Date	Time	Date	Time
24 April 199	0645 hrs	03 April 2004	1530 hrs
16 April 2000	1630 hrs	18 April 2005	1800 hrs
12 April 2001	0730 hrs	25 March 2006	0745 hrs
14 April 2002	0830 hrs	06 April 2007	0730 hrs
20 March 2003	1700 hrs	06 April 2008	1230 hrs

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—Editorial—

Will we force the Narcondam Hornbill Aceors narcondami into extinction?

Human actions, whether direct or indirect, are nowadays almost singularly responsible for nudging species towards their doom. Redemption from such a, potentially, lost cause lies in the adroit harnessing of resources, an assessment of the situation, the application of rigorous science, and hopefully, the forestalling of a threatened species careening towards extinction.

In India, vultures have been the hapless victims of a seemingly innocuous human act—that of using a drug as a painkiller for cattle—resulting in a population crash that teeters on the verge of extinction. Just ten years ago, who would have believed that E. H. Aitken's laudatory "unsalaried public servants"[1], would come to this? In the nick of time, the culprit that caused the vultures' drooping death was identified. If the drug were to be banned, its usage completely stopped, the vultures would have a slim chance of recovery. Banning a drug is difficult, enforcing that ban, a nightmare. A tug-of-war between players only erodes resolve into time-fed laxity—all at the expense of the vultures' future.

The Edible-nest Swiftlet *Collocalia fuciphaga* is found throughout southeastern Asia, but in India, it inhabits only the Andaman & Nicobar Islands. Its pure 'saliva' nest is a victual delicacy in southeastern Asian cuisine, wherein lies its nemesis. Protecting the bird in the wild is impossible, given its preferred breeding terrain. The conservation solution is to ranch it in such a way that its eggs are slipped under surrogate Glossy Swiftlets *C. esculenta*, and its nest, harvested. A misinformed government order placed the Edible-nest Swiftlet in Schedule I of The Indian Wildlife (Protection) Act, 1972, thereby protecting it totally, and paradoxically, blocking the only scientific solution that would ensure its continued survival on the islands. The only way forward was to remove the bird from Schedule I, allow its nest to be harvested, and prevent the species from becoming extinct (in India) by protection!

The third scenario is centered on the 6.82 km², volcanic, Narcondam Island—home to the endemic Narcondam Hornbill Aceros narcondami. In 1905 the population of hornbills on Narcondam was *c*200, in 1972 *c*400, in 1998 *c*360[2], in 2000 *c*432[3], and in 2003 *c*340[4]. Why is this bird at a cul-de-sac, when its population has been more-or-less stable over one hundred years? The simple one-word answer is—goats. Lavkumar Khachar's article highlights this issue and the urgent need for action. Will we allow goats to eat an island from under the Narcondam Hornbill? Indeed, will we allow them to do what we sent a posse of policemen to prevent Myanmar from doing—take the island away from India? Without vegetation holding it together, the volcanic rock will erode over time. Today it may sound fatalistic to say that an island devoid of vegetation might not survive the vagaries of tropical weather, but water and wind are an unstoppably potent force of erosion—and this, a one-way street to environmental disaster.

Island natural histories are mortally susceptible to invasions of flora and fauna and the introduction of goats on Narcondam is an act of criminal negligence, a slap in the face of our cognitive intelligence. The immediate solution is to remove all the goats, both captive and feral, from Narcondam, by whatever means necessary—delay would be catastrophic; implementation might restore equilibrium over time.

Paradoxically we only learn about a critically threatened species when it is already slipping downhill. Narcondam, however, is a situation that can be rectified easily. Yet, it is more than a decade since the late Ravi Sankaran of SACON raised these concerns and alarms in a report published by the institution, as did the late S. A. Hussain of BNHS, in several publications. The Indian government has taken no corrective action up till now. It is still not too late in the day to salvage the situation. If there is quick action, the magnificent Narcondam Hornbill will certainly survive, in splendid isolation, on a wild volcanic outcrop jutting above the storm-tossed waters of the Bay of Bengal—the unquestioned icon of a potential Peace Park between India and Myanmar and a symbol of successful conservation.

—Aasheesh Pittie

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Aims & Objectives

- To publish a newsletter that will provide a platform to birdwatchers for publishing notes and observations primarily on birds of South Asia.
- To promote awareness of birdwatching amongst the general public.
- To establish and maintain links/liaison with other associations or organized bodies in India or abroad whose objectives are in keeping with the objectives of the Trust (i.e. to support amateur birdwatchers with cash / kind for projects in ornithology).

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Front cover: Black Shaheen *Falco peregrinus* feeding on a Common Teal *Anas crecca* in Rajaji National Park.

Photographer: Nikhil Devasar, December 2008

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Avifauna of Arki Hills, Solan (Himachal Pradesh), India

M. L. Thakur, V. K. Mattu, Hira Lal, Viveka Nand Sharma, Hem Raj & Vanita Thakur

Thakur, M. L., Mattu, V. K., Lal, H., Sharma, V. N., Raj, H., & Thakur, V., 2010. Avifauna of Arki Hills, Solan (Himachal Pradesh), India. *Indian Birds* 5 (6): 162–166.

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Manuscript received on 4 February 2009.

Abstract

Ornithological explorations carried out in Arki Hills of Himachal Pradesh revealed the presence of 85 species of birds belonging to 66 genera spread over 30 families and 12 orders. The study revealed that of the total, 45 species showed seasonal-local movements, 17 were summer visitors, 8 showed summer influx, 7 were winter visitors, 5 were residents and 3 showed winter influx. It was further recorded that of the total 85 species, 47 were common, 26 very common, 10 uncommon and 2 were rare. Moreover, it was analysed that maximum number of species (42) were insectivorous, followed by frugivorous (13 species), omnivorous (11), graminivorous (9 species), scavengers and aquatic animal eaters (4 each), and vegetable matter eaters and carnivorous (1 species each). The study further showed that Arki Hills sustain three such species of birds, which have been facing threat to their existence throughout their natural distributional range. Of these, Indian White-backed Vulture and Red-headed Vulture have been placed under Critical category and Egyptian Vulture has been categorized as Endangered.

Introduction

The Himalayan ecosystem is unique, and an extremely rich repository of natural resources and biological wealth. Though breath-takingly beautiful, the Himalayan environment is largely inaccessible, and hence far less degraded ecologically than the mainland; but it is extremely fragile, and rather vulnerable to even small biophysical changes. The mountain ranges are approximately 2,200 kms long with a total width that varies between 40–400 kms (Mani 1981).

Ornithological studies on diversity, and status, of birds were conducted in various habitat types of Arki Hills (30°05'–31°15'N 76°42'–77°20'E; 1,100–1,600 m a.s.l.), in Solan district of Himachal Pradesh. These studies were conducted during the different seasons of 2006–2007 in various habitat types spread over different parts of Arki Hills, like Arki proper (1,219 m), Shalaghat (1327 m), Manjhu (1,130 m), Kunihar (1,102 m), Dumehar (1,148 m), Bhumati (1,150 m), Piplughat (1,169 m), Bhararighat (1,140 m), and Darlaghat (1,450 m). Most of the study area has mountainous terrain except the Kunihar belt. The climate of area is sub-tropical, and the flora is dominated by *Quercus* spp., *Eucalyptus* spp., *Pinus roxburghii*, *Acacia* spp., *Toona* spp., *Lantana camara*, *Cassia* spp., *Citrus* spp., *Carissa opaca*, *Berberis* spp., *etc.*

Avifaunal studies have been conducted in different parts of Himachal Pradesh by several people (Ali 1949; Ganguli 1967; Ali & Ripley 1983a; Mahabal & Mukherjee 1991; Mahabal & Sharma 1992, 1993; Gaston *et al.* 1993; Gaston 1997; Mishra 1997; Singh 1998; Khan *et al.* 1999; Javed *et al.* 2001; Ramesh *et al.* 2002; Besten *et al.* 2004; Pandey *et al.* 2004; Mahabal 1992, 1996, 2000a,b, 2005; Mattu & Thakur 2004, 2006; Thakur *et al.* 2002, 2003, 2006; Thakur 2008), and a few studies have been conducted in different parts of Solan district (Tilak & Tyagi 1977; Mukherjee & Chandra 1984; Narang & Singh 1995; Sharma & Mahabal 1997; Harrison 1998; Thirumurthi & Banumathi 1998; Kalsi 1999; Narang & Rana 1999; Bashir 2000), whereas, the present study area of Arki Hills has not received the attention of the field workers. Therefore, studies were conducted on different aspects of birdlife like diversity, residential status, relative abundance, and feeding habits in this hilly area.

Methodology

Keeping in view the comparatively large size of the study area, stratified random sampling technique (Snedecore & Cochran 1993) was followed for studying the birds of each area, which involved the division of sites into different strata, based on vegetation type, and habitat. Various habitats types like forests, grasslands, agriculture fields, streams, human settlements, *etc.*, spread over different parts of Arki Hills were selected for the present studies.

Birds were observed through 10x50 prismatic field binoculars. For field identifications we used various field guides (Ali & Ripley 1983b; Grimmett *et al.* 1999; Kazmierczak 2000). The nomenclature follows Manakadan & Pittie (2001).

The data recorded in each survey, from different habitat types, was kept separate, and analysed for relative abundance on the basis of frequency of sightings, as per MacKinnon & Phillipps (1993), as: very common (VC) - sighted more than ten times, common (C)- sighted seven to nine times, uncommon (UC)- sighted three to six times and rare (Ra)-sighted once or twice.

Residential status of the birds has been worked out and different status categories like resident, winter visitor and summer visitor have been assigned strictly with reference to the study area on the basis of presence or absence method. The birds that showed irregular trend of sighting and population fluctuations (non-seasonal) have been placed under resident with local movements (R/LM) category (Thakur 2008). Moreover, the feeding habits of the birds like insectivorous, graminivorous, frugivorous, *etc.*, as shown in Ali & Ripley (1983a) have been assigned to each species.

Results & discussion

The present study revealed the presence of 85 spp., of birds belonging to 66 genera spread over 30 families and 12 orders. Passerine birds dominated the diversity with 55 species as

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compared to non-passerines (30 spp.) (Table 1).

Muscicapidae is the largest family of birds in India with 370 spp. (Manakadan & Pittie 2001). Present investigations also revealed that family Muscicapidae (27 spp.) dominated the avifauna, followed by Corvidae (six each), Accipitridae (five spp.), Phasianidae, Columbidae and Psittacidae (four each), whereas, Ardeidae, Charadriidae, Laniidae, Strigidae, Apodidae, Meropidae, Upupidae, Sittidae, Certhiidae, Zosteropidae, Emberizidae, Fringillidae and Dicruridae (one sp., each) were poorly represented in the area. Moreover, four Orders, namely, Ciconiiformes, Strigiformes, Charadriiformes, and Apodiformes, were poorly represented in the study area with a single species each (Table 1). Recently Mahabal (2005) also recorded Muscicapidae as the largest family of birds, comprising 105 spp., from Himachal Pradesh. Similarly, many other investigators like Narang (1989), Pandey (1989), Mahabal & Mukherjee (1991), Suyal (1992), Narang & Singh (1995), Mahabal (1992, 1996, 2000a, b), Mattu & Thakur (2004, 2006), and Thakur *et al.* (2002, 2003, 2006) have also found Muscicapidae to be the largest family in different parts of Himachal Pradesh.

Analysis of data on residential status revealed that out of 85 spp., 5 were resident, while the remaining 80 showed seasonal-local or long-range migrations. Analysis based on presence/absence method and population fluctuations revealed that of the 80 seasonal-local and long-range migrants, 45 spp., showed seasonal-local movements, 17 were summer visitors, seven winter visitors, three showed winter influx, and eight showed summer influx. Further analysis of residential status, and relative abundance indicated that of five resident spp., two were very common, and three were common. Of the local migrants, 21 were common, 18 very common, five were uncommon, and one was rare. Categorization of long-range migrants revealed that out of seven winter visitors, four were common, two were uncommon, and one was very common. Of the 17 summer visitors, 12 were common, two each came in the categories of very common and uncommon, and one was rare. Moreover, of the three spp., which showed winter influx, two were common, and one was uncommon. Of the eight species with summer influx, five were common, and three were very common. Therefore, the study revealed the presence of 47 common, 26 very common, 10 uncommon and 2 rare species of birds (Table 1; Fig. 1).

These studies are in compliance with the earlier works of Hunter (1989), Gaston *et al.* (1993), Thakur *et al.* (2002, 2003, 2006), and Mattu & Thakur (2004, 2006) who also reported the presence of different categories of birds like resident, summer visitors, winter visitors, very common, common, *etc.*, from different biogeographical regions of Himachal Pradesh. Recently Mahabal (2005) reported 447 species of breeding, staging, and wintering birds spread over 232 genera, belonging to 65 families, and 17 orders from Himachal Pradesh. Further, 35.5% residents, 15.7% winter visitors, 11.6% summer visitors, 10.4% altitudinal migrants and 26.8% birds of Himalayan ecosystem were reported. Similarly, Thakur (2008) recorded 123 species of altitudinal migrant birds, 72 seasonal-local migrants, 61 winter visitors, 33 residents, 28 summer visitors, four winter influx and one summer influx from different biogeographical zones of Himachal Pradesh.

Analysis of feeding habits showed that a maximum number of species (42) were insectivorous, followed by frugivorous (13 spp.), omnivorous (11), graminivorous (nine), scavengers and aquatic animal eaters (four each), and vegetable matter eaters and carnivorous (one each) (Table 1; Fig. 2). Similarly, about 47 % (210 spp.) of birds in Himachal Pradesh were recorded as insectivorous, and important agents of bio-control of insect pests of agriculture, horticulture and forests (Mahabal 2005).

It has been found that there are three such species of birds in Arki Hills, which have been placed under different threat categories. Of these, Indian White-backed Vulture, and Red-headed Vulture, have been placed under Critically Endangered category and Egyptian Vulture has been categorized as Endangered (IUCN 2007).

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Abbreviations

AqA=Aquatic Animal, C=Common, CR=Carnivorous, FR=Frugivorous, GR=Graminivorous, I=Insectivorous, OM=Omnivorous, R/AM=Resident with altitudinal movements, R/LM=Resident with local movements, R/SV=Resident with summer influx, R/WV=Resident with winter influx, R=Resident, Ra=Rare, SC=Scavenger, SV=Summer visitor, UC=Uncommon, VC=Very common, VgM=Vegetable Matter, WV=Winter visitor.

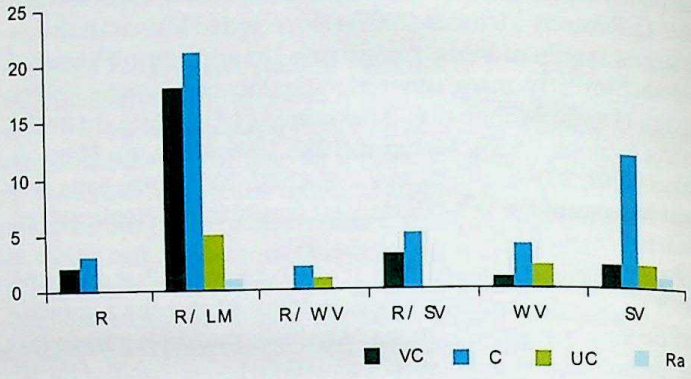

Fig. 1. Residential status and relative abundance of birds of Arki Hills

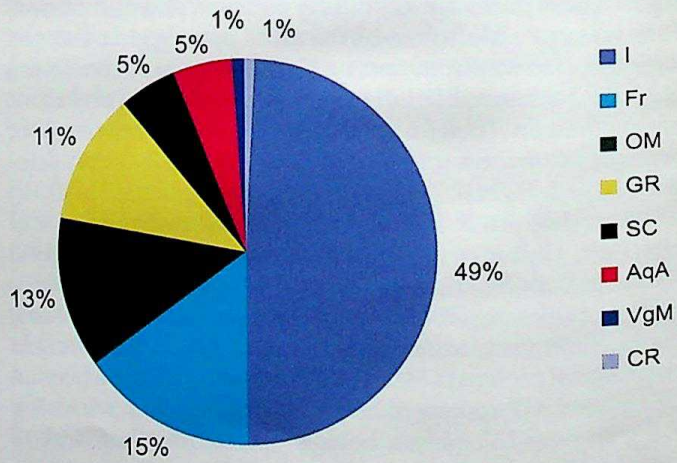

Fig. 2. Feeding habits of the birds of Arki Hills, Solan (Himachal Pradesh)

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Table 1. Systematic List of Birds of Arki Hills, Solan (Himachal Pradesh)

List of Birds	Residential Status	Relative Abundance	Feeding Habits
Cattle Egret *Bubulcus ibis*	SV	UC	AqA
Black Kite *Milvus migrans*	SV	VC	OM
Egyptian Vulture *Neophron percnopterus* * EN	R/LM	C	SC
Indian White-backed Vulture *Gyps bengalensis* *CR	R/LM	Ra	SC
Himalayan Griffon *G. himalayensis*	R/LM	C	SC
Red-headed Vulture *Sarcogyps calvus* * CR	R/LM	UC	SC
Black Francolin *Francolinus francolinus*	R	VC	VgM & I
Red Junglefowl *Gallus gallus*	R/LM	C	GR
Kaleej Pheasant *Lophura leucomelanos*	R	C	GR
Indian Peafowl *Pavo cristatus*	R/LM	UC	OM
Red-wattled Lapwing *Vanellus indicus*	R/SV	C	I
Blue Rock Pigeon *Columba livia*	R/LM	VC	GR
Oriental Turtle-Dove *Streptopelia orientalis*	R/LM	VC	GR
Spotted Dove *S. chinensis*	R/LM	VC	GR
Wedge-tailed Green-Pigeon *Treron sphenura*	R/LM	C	FR
Alexandrine Parakeet *Psittacula eupatria*	R/LM	C	FR
Rose-ringed Parakeet *P. krameri*	R/SV	VC	FR
Slaty-headed Parakeet *P. himalayana*	R/SV	VC	FR
Plum-headed Parakeet *P. cyanocephala*	R/SV	VC	FR
Brainfever Bird *Hierococcyx varius*	SV	C	I
Common Cuckoo *Cuculus canorus*	SV	VC	I
Asian Koel *Eudynamys scolopacea*	SV	C	FR
Spotted Owlet *Athene brama*	R	C	I, CR
White-throated Needletail-Swift *Hirundapus caudacutus*	SV	Ra	I
White-breasted Kingfisher *Halcyon smyrnensis*	R/LM	C	AqA
Common Hoopoe *Upupa epops*	R/LM	VC	I
Great Barbet *Megalaima virens*	R/LM	VC	FR, I
Blue-throated Barbet *M. asiatica*	R/LM	C	FR
Brown-fronted Pied Woodpecker *Dendrocopos auriceps*	R	C	I
Fulvous-breasted Pied Woodpecker *D. macei*	R/LM	C	I
Red-rumped Swallow *Hirundo daurica*	SV	C	I
Asian House-Martin *Delichon dasypus*	R/LM	C	I
Grey Wagtail *Motacilla cinerea*	R/LM	VC	I
Himalayan Bulbul *Pycnonotus leucogenys*	R/LM	VC	FR
Red-vented Bulbul *P. cafer*	R/LM	C	FR
Black Bulbul *Hypsipetes leucocephalus*	R/LM	C	FR
Rufous-backed Shrike *Lanius schach*	R/SV	C	CR
Chestnut-bellied Rock-Thrush *Monticola rufiventris*	R/LM	UC	I
Blue Whistling-Thrush *Myophonus caeruleus*	R/LM	VC	AqA
Grey-winged Blackbird *Turdus boulboul*	WV	UC	I
Dark-throated Thrush *T. ruficollis*	WV	C	I
Oriental Magpie-Robin *Copsychus saularis*	SV	C	I
Black Redstart *Phoenicurus ochruros*	WV	VC	I

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Table 1. Systematic List of Birds of Arki Hills, Solan (Himachal Pradesh)

List of Birds	Residential Status	Relative Abundance	Feeding Habits
White-capped Redstart *Chaimarrornis leucocephalus*	R/LM	C	I
Plumbeous Redstart *Rhyacornis fuliginosus*	R/LM	C	I
Spotted Forktail *Enicurus maculatus*	R/LM	UC	AqA
Common Stonechat *Saxicola torquata*	R/SV	C	I
Pied Bushchat *S. caprata*	SV	UC	I
Grey Bushchat *S. ferrea*	R/LM	VC	I
Streaked Laughingthrush *Garrulax lineatus*	R/LM	C	I
Variegated Laughingthrush *G. variegatus*	R/WV	UC	I, FR
Black-chinned Babbler *Stachyris pyrrhops*	R/SV	C	I
Jungle Babbler *Turdoides striatus*	SV	C	I
Bar-throated Minla *Minla strigula*	R/LM	C	I
Rufous Sibia *Heterophasia capistrata*	R/LM	C	I
Brown Prinia *Prinia crinigera*	R/LM	C	I
Brown-flanked Bush-Warbler *Cettia fortipes*	R/LM	UC	I
Lemon-rumped Warbler *Phylloscopus chloronotus*	R/LM	C	I
Ultramarine Flycatcher *Ficedula superciliaris*	SV	C	I
Verditer Flycatcher *Eumyias thalassina*	SV	C	I
Grey-headed Flycatcher *Culicicapa ceylonensis*	R/LM	VC	I
Asian Paradise-Flycatcher *Terpsiphone paradisi*	SV	C	I
Yellow-bellied Fantail-Flycatcher *Rhipidura hypoxantha*	WV	C	I
White-throated Fantail-Flycatcher *R. albicollis*	SV	C	I
Red-headed Tit *Aegithalos concinnus*	R/LM	VC	I
Spot-winged Crested Tit *Parus melanolophus*	WV	UC	I
Great Tit *P. major*	R/LM	VC	I
Green-backed Tit *P. monticolus*	R/LM	C	I
Wallcreeper *Tichodroma muraria*	WV	C	I
Bar-tailed Tree-Creeper *Certhia himalayana*	R/LM	C	I
Oriental White-eye *Zosterops palpebrosus*	SV	C	OM
Rock Bunting *Emberiza cia*	R/LM	VC	GR
Common Rosefinch *Carpodacus erythrinus*	WV	C	GR
House Sparrow *Passer domesticus*	R/LM	VC	GR
Cinnamon Tree Sparrow *P. rutilans*	R/SV	C	GR
Common Myna *Acridotheres tristis*	R	VC	OM
Jungle Myna *A. fuscus*	SV	C	OM
Indian Golden Oriole *Oriolus kundoo*	SV	C	FR
Black Drongo *Dicrurus macrocercus*	R/LM	VC	I
Eurasian Jay *Garrulus glandarius*	R/WV	C	OM
Black-headed Jay *G. lanceolatus*	R/WV	C	OM
Red-billed Blue Magpie *Urocissa erythrorhyncha*	R/LM	VC	OM
Grey Treepie *Dendrocitta formosae*	R/LM	VC	OM
House Crow *Corvus splendens*	R/LM	C	OM
Jungle Crow *C. macrorhynchos*	R/LM	VC	OM

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Ornithological literature from South Asia[1] and Tibet—2008

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[1] South Asia includes Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka, and the Maldives.

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Abbreviations

CBCN = *Ceylon Bird Club Notes*.
J. Bombay Nat. Hist. Soc. = *Journal of the Bombay Natural History Society*.
NLBW = *Newsletter for Birdwatchers*.

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Unusual mass-movement of Streaked Spiderhunter *Arachnothera magna* in Namdapha National Park, Arunachal Pradesh, India

Manoj Sharma & Alka Vaidya

Sharma, M., & Vaidya, A., 2010. Unusual mass-movement of Streaked Spiderhunter *Arachnothera magna* in Namdapha National Park, Arunachal Pradesh, India. *Indian Birds* 5 (6): 174–175.

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Streaked Spiderhunter *Arachnothera magna* (Fig. 1) is 'a chunky, entirely streaked sunbird-like species with an exceptionally long, fairly straight bill and heavy orange legs' (Rasmussen & Anderton 2005). The species is distributed from Himachal Pradesh, central Nepal, Sikkim, West Bengal (Darjeeling and Jalpaiguri districts), Bhutan, Arunachal Pradesh, Nagaland, Manipur, Assam (Cachar district), Meghalaya, and the hills of Bangladesh to Chittagong Hill tracts (Ali & Ripley 1969).

The call of Streaked Spiderhunter is described as '*chirrick, chirrick*' (Kazmierczak 2000) and '*chittup or chitturup*, occasionally given singly or as triplet, and may be given in flight' (Rasmussen & Anderton 2005). The species is known to be fond of the nectar of wild banana flower (Grimmett *et al.* 1998).

Streaked Spiderhunters are 'found singly or in pairs, sometimes in mixed parties' (Cheke *et al.* 2001). Ali & Ripley (1969), Grimmett *et al.* (1998), and Wells (2007) also subscribe to these views about the species' social units. At least 22 birds have been seen moving along a ridge on a November morning in west Yunnan, China (del Hoyo *et al.* 2008). In Bhutan, 'in January–February, it is often found at flowering *Bombax* trees, sometimes in flocks of upto 30' (Spierenburg 2005).

On 9 November 2005, between 1325–1400 hrs, we came across large numbers of flocks of 5–15 Streaked Spiderhunters on the junction of the road coming from the direction of Gibbon's Land, and going to Gandhigram, and the road going downhill to Deban forest rest house in Namdapha National Park, Arunachal Pradesh, India. The forest on the hillside along which these flocks of birds were observed was full of wild banana plants (Fig. 2).

The birds were flying uphill from the direction of the Noa Dehing River (Fig. 3), and continuing along the steep forested hillside above the road. The loose flocks were flying uphill across more than 150 m of visible hillside, emerging here and there at an interval of 20–30 seconds. The birds were flying from tree to tree in a strong, swift and somewhat undulating flight. They were using tall treetops for brief stopovers. The average distance of trees that the birds were using was not more than 10–20 m. These flocks of birds were stopping for 5–10 seconds in each tree that they visited on their uphill movement. The birds were hopping from branch to branch while crossing the tree canopy, traveling in the general direction they were following. There was no attempt to feed while the birds were in the trees. The birds were calling *chirrick, chirrick* in flight and also while in the trees. At times there were two or three flocks visible within the area being observed. The elevation of the site was *c* 440 m. The uphill movement was still continuing when we left the place. It was interesting to note that during the entire period of our observations, not a single bird was observed flying downhill. A brief inspection of the area ahead, and along the road going towards Gandhigram revealed that such uphill movements were taking place in that area as well. Sudhir Deorukhakar (*pers. comm.*), who was staying at Deban forest rest house, informed later that on the same day at 14:40 hrs he too observed this phenomenon in the same area as our observations. During our 35-minute observation we counted more than 60 flocks, and estimated they may have contained more than 600 individuals; but it seems that the congregation of Streaked

Ramki Sreenivasan

Fig. 1. Streaked Spiderhunter *Arachnothera magna*.

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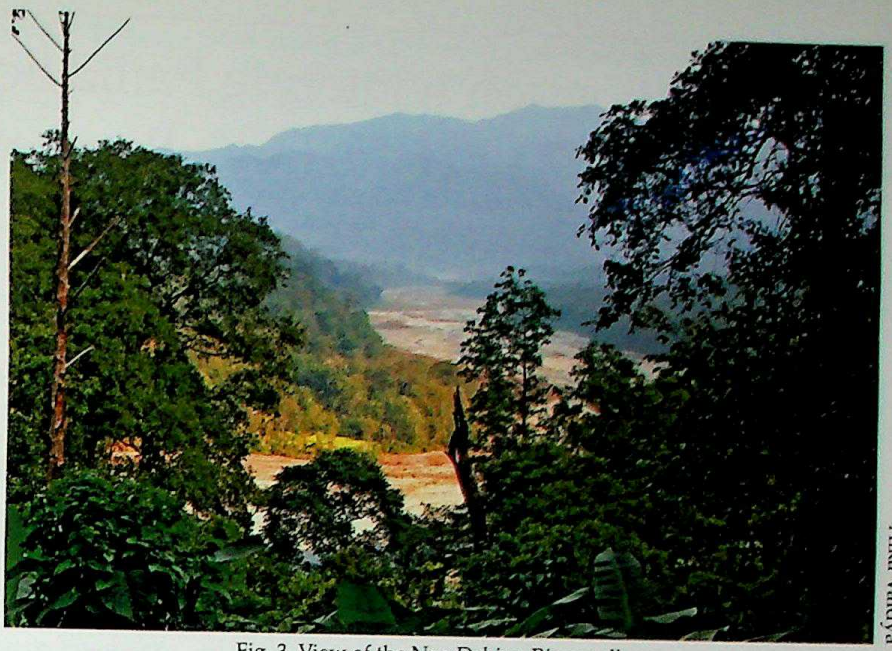
Spiderhunters in that small area could have been much larger than that. On 12 November 2005, between 0830–0900 hrs, while walking along the road from Deban forest resthouse to Gibbon's Land, MS saw similar movement of small flocks of Streaked Spiderhunters in an area that lies 200–500 m from the earlier place, and towards Gibbon's Land. These flocks were observed flying at an average interval of 30–40 seconds, emerging here and there and consisted of 5–10 birds. It was estimated that 40–50 such flocks, with upto 300 birds, were observed. Once again all the birds were flying uphill.

Congregations of such large numbers of Streaked Spiderhunters, in small areas, have never been recorded before, and need further study.



Alka Vaidya

Fig. 3. View of the Noa Dehing River valley.

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Alka Vaidya

Fig. 2. Forest, full of wild banana plants, on the main road between Gibbon's Land and Gandhigram, close to the junction from where a road goes to Deban forest resthouse.

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Observations on wintering Pallid Scops Owl *Otus brucei* at Zainabad, Little Rann of Kachchh, Surendranagar district, Gujarat

Harkirat Singh Sangha & Dhanraj Malik

Sangha, H. S., & Malik, D., 2010. Observations on wintering Pallid Scops Owl *Otus brucei* at Zainabad, Little Rann of Kachchh, Surendranagar district, Gujarat. *Indian Birds* 5 (6): 176–177.
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Introduction

The Pallid Scops Owl *Otus brucei* is found from the Middle-East (south-central Turkey, northern Syria, Iraq, Iran, eastern Arabia) to western and central Asia, south to Afghanistan, Pakistan, and north-western India. Although it is present all year round in south-eastern Arabia, and Iran, other populations are mostly migratory, wintering in the Levant region, north-eastern Egypt, Arabia, and in India south to Mumbai (König *et al*. 1999). It breeds from Palestine to the Aral Sea and Afghanistan, and winters at the southern part of this range, and northern India (Marshall 1978), preferring cultivated, and riverine woodlands, and in northern India, and Pakistan, stony semi-deserts, steep cliffs, and rocky gorges where trees grow larger than bush size (Voous 1988). Specimens of the nominate *brucei* (breeding in northern Central Asia) have been collected in autumn, and winter, in Pakistan, and the Mumbai region of western India, but not elsewhere (Cramp 1985). From Afghanistan, Paludan (1959) has mentioned "one record (Wakhan)", but doubted that it bred there.

Ali & Ripley (1981) consider the Pallid Scops Owl an imperfectly known species within the Indian Subcontinent. In Pakistan it is reported from Gilgit, Punjab (Salt Range), Quetta district, Baluchistan—from Chaman to central Makran. It is recorded only during winter in Sind (Murray 1884). Indian records are from Mumbai, Pune, Thane, and Ahmednagar (its type locality) (Ripley 1982).

Its distributional status in Pakistan is that of a scarce resident and local migrant, summering in the hills, with a few winter records from the plains. Kylänpää (2000) mentions Pallid Scops Owl as a rare resident around Sheikh Budin, Dera Ismail Khan in North West Frontier Province of Pakistan but gives no other information. In India it is a rare visitor (Grimmett *et al* 1998). del Hoyo *et al*. (1999) describe it as rare visitor in India. Baker (1927) described it as a straggling visitor to India.

Ali (1945) did not find it during his 1943–1944 surveys in Kachchh; nor has he listed it for Gujarat (Ali 1956). However, Dharmakumarsinhji (1955) stated that it was a rare straggler in Saurashtra and recorded collecting specimens at Hathab, Bhavnagar.

According to Rasmussen & Anderton (2005) it disperses in winter to the plains of Pakistan, "commonly reaching western Maharashtra (numerous verified specimens)". However, Prasad (2003, 2006) gives its status as unclear, and rare, in Maharashtra. Abdulali (1972) presents details of only four specimens from Maharashtra, in the Bombay Natural History Society's (BNHS) collection: two old skins from Pune (1882) and Ratnagiri (1874), and a third from Thane (1960). The fourth is in the collection of St Xaviers High School, obtained from Andheri (1965).

Thus it has been recorded only on few occasions from India, and all the recent records are not from Maharashtra but from western and northern India. A bird was caught and measured on 13 November 1984 at Rajkot, Gujarat (Mundkur 1986). A specimen was collected from Ambala, Haryana and sent to the BNHS in January 1982 (Roberts 1992). A pair was observed roosting in the branches of the only tree below Hanle monastery, Ladakh, on 8 October 1997 (Pfister 2001).

A new record from Gujarat

On 15 October 2008, this rare owl was discovered by chance by DM in his wildlife resort, Desert Coursers, Zainabad (23°16′51N 71°46′09E), in the Little Rann of Kachchh, Surendranagar district, Gujarat, India. It was roosting in a tree by day. Subsequently one more bird was found here, roosting in a hollow of a wall, and a third was discovered in the beginning of February 2009. HSS

H. S. Sangha

Fig. 1. Day-roosting Pallid Scops Owl *Otus brucei*.

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observed them from 29 to 31 December 2008, and on 31 January 2009.

Description

Scops-owls (Genus *Otus*) have an intricate pattern of colouring resembling bark and dry leaves, which camouflage them appropriately among regional flora, while it roosts in the daytime (Marshall 1978). The bird exhibits a whole cline of colour variation from sandier to grey plumages (Mikkola 1983). The bird at Zainabad was the nominate *brucei*, rather grey with sharply defined streaks. Of the four distinct size-groups at least nominate *brucei* migrates to northern India (Cramp 1985). The identification was fairly straightforward facilitated by the best of views and good light conditions.

One bird, roosting upright in a tree, appeared rather slim, with its plumage sleeked and its rounded ear-tufts raised (Fig. 1).

However, at night it appeared dumpier, with relaxed body plumage, a more rounded head, and ear-tufts only slightly raised with feathers of head held loose (Fig. 2).

Overall the bird looked creamy-grey with fine sharp black streaks. Under parts were comparatively paler with black striations thicker and longer on breast side. These appeared to become narrower and sharper towards tips, whereas on Eurasian Scops Owl *Otus scops* they normally become slightly broader and diffuse.

The facial disc appeared paler, greyer and much plainer-looking with tiny grey specks, and short whitish eyebrows. The bristles at sides of bill were creamy white. Feathers of ruff bordering facial disc were black and rather prominent, the border not developed near forecrown and chest.

The birds kept their eyes closed during the day but at night iris appeared bright yellow (although in Fig. 2 they look quite different in flash light). The bill was horn-brown, dark black on tip and feet light grey, claws were light horn at base but tips lead coloured.

Behaviour

Three birds wintered in Desert Courser Camp, Zainabad from 15 October 2008 to 1 April 2009. Two birds were seen regularly in the camp during this period. A third bird was found towards the end of winter. The camp, on the eastern edge of the Little Rann of Kachchh, is the better-wooded part, for miles, in the area. Undoubtedly, this oasis, with its scattering of neem *Azadirachta indica* and khejri *Prosopis cineraria* trees, attracted the birds.

The owls spent most of the day motionless at their daytime roost. One bird, holed up in a wall, was relaxed, and kept its plumage rather loose. Another, which roosted in neem and khejri, effectively disguised itself as a snag.

Although both birds were tolerant of human presence, the one roosting in trees was seen changing its roost due to disturbance from people. It flew a short distance into another tree if disturbed by day.

DM did not hear them calling any time.

The owls were present till 1 April 2009, after which there were no further reports.

Dhanraj Malik

Fig. 2. Pallid Scops Owl *Otus brucei* at night.

Stop press: 2009–2010 winter

The first Pallid Scops Owl arrived at Desert Coursers on 27 October 2009, and two more were seen about a fortnight later. They spent the winter there, and were last seen on 12 March 2010. Most likely they were the same birds as the previous year.

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Horned Lark *Eremophila alpestris* in Nameri National Park, Tezpur district, Assam

Dilip S. Pandit

Pandit, D. S., 2010. Horned Lark *Eremophila alpestris* in Nameri National Park, Tezpur district, Assam. *Indian Birds* 5 (6): 178.
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On 11 April 2009 I photographed a Horned Lark *Eremophila alpestris* in Nameri National Park (26 50'N–27 02'N 92 38'E–93 00'E), Assam (India). The terrain of the park is uneven with altitudes ranging from 80 m along the riverbanks to 225 m in its central and northern parts. Tropical evergreen, and semi-evergreen forests mingle here with moist deciduous forests, while cane and bamboo brakes, and narrow strips of open grassland can be found along the many rivers. The area is drained by the Jia Bharali (also known as River Kameng in Arunachal Pradesh), and its tributaries, namely the Diji, Dinai, Doigurung, Nameri, Dikorai, Khari, *etc*. The park covers an area of 200 km^2, and is augmented by parts of the Balipara reserve forests area, which acts as a 64 km^2 buffer on the opposite side of the Jia Bharali, and 80 kms^2 of the Nauduar reserve forests.

Ali & Ripley (1987) report that this species is mostly found at high altitudes in the Himalaya, and in NEFA (now Arunachal Pradesh). Grimmett *et al*. (1998), and Kazmierczak (2000) have put a question mark on its presence in Arunachal Pradesh, and completely excluded Assam, and Bhutan from its range. There seems little doubt about the fact that this bird has neither been seen nor reported from Assam before.

The photograph (Fig. 1) accompanying this note are essentially self-explanatory in identifying this bird. It is an adult male, as can be seen from the black band across the breast and black-white head pattern. The races *albigula* and *longirostris* differ in the way the breast-band and moustachial stripe are formed. In the former they are joined, while in the latter they are distinctly separate. Obviously this bird belongs to the latter race.

The bird was seen on the ground, at about 1200 hrs, near the forest check post inside Nameri National Park, not very far from the bank of Jia Bharali River, at an altitude of 80 m. The day was bright and hot. This bird was, for about an hour, foraging under the shade of a tree about 4–6 m from the check post. It appeared to be in considerable discomfort because of the heat, as it kept its beak open for much of the time, and never ventured outside the shade. The habitat in Nameri is very different from that of the Himalaya, and Tibet, where it is generally found. The bird allowed close views, and after an hour, or so, flew away to a nearby tree. But a couple of hours later the bird was again seen a little further ahead.

Kelsey (2004) has reported this species from Delhi.

Nikhil Bhopale

Fig. 1. Horned Lark *Eremophila alpestris* in Nameri National Park.

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Editor's note

Remarkably, this same individual of the Horned Lark was spotted, and photographed by a party of Bombay Natural History Society's members, one of whom, Nikhil Bhopale, wrote up, and submitted a note for publication to this journal, about two weeks later than the above note. In it, Nikhil makes the following additional points: previous records of this bird are from Delhi, Kashmir, Gilgit, Chitral, Sikkim, Himachal Pradesh, Punjab, Arunachal Pradesh; NW Pakistan, Afghanistan, Nepal, and Bhutan (del Hoyo *et al*. 2004; Kazmierczak 2000; Grimmett *et al*. 1998; Rasmussen & Anderton 2005). It is not listed in Choudhury (2000). These birds feed on plant material in winter, and on invertebrates in summer (del Hoyo *et al*. 2004). They breed up to the snowline, 3,300–5,400 m in the Himalaya, and winter at lower elevations, 1,500–3,000 m, in the non-breeding season. But this bird was also spotted in Delhi, which is at 213 m, and we spotted this bird in Nameri National Park, which is at 94 m; this could probably be the first record from such a low elevation.

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Sri Lanka Frogmouths *Batrachostomus moniliger* of Kogar: filling in the 'gaps'

Sahas Barve

Barve, S. 2010. Sri Lanka Frogmouths *Batrachostomus moniliger* of Kogar: filling in the 'gaps'. *Indian Birds* 5 (6): 179.
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The Sri Lanka Frogmouth *Batrachostomus moniliger* is a cryptic bird of the Western Ghats, and Sri Lanka (Ali 1970). Little is known about the species' ecology, demographics, and other life history traits because of its cryptic colouration, nocturnal activity period, and shy nature. Some information does exist on its nesting ecology from Sri Lanka as well as India (Jayarathna 2004; Kannan 1995), and the species is considered partial to wet evergreen forests and cane brakes.

This note confirms the presence of the species in Karnataka, India. ON 20 March 2009 a bird was sighted in an evergreen forest patch in the Kogar Ghat (14.09°N 74.68°E; 90 m a.s.l.), an area of hilly terrain with lowland wet evergreen forest on the outskirts of the Sharavathy Wildlife Sanctuary near Bacchodi village in Udupi district. The closest record of the species is from Anshi National Park, situated in the northern tip of the North Kannara district, and is situated 125 km to the north.

The species was attracted with a "call play-back" technique in which a previously recorded call of the species was played on a loudspeaker. The recorded calls consisted of calls of both sexes. Response calls were heard around 0100 hrs and also between 1730 and 2030 hrs. The frequency of reply calls increased as the ambient light waned. The first replies were heard at the above-mentioned point along the road, which is a state highway. Then this exercise was repeated at five locations approximately 300 m apart along the same road where it passes through degraded wet evergreen forest. At least two males, and one female replied at every playback station, so a minimum of 17 birds were detected, but the individuals were not sighted on every occasion. Unlike males, females did not reply to calls before sunset but responded intensively after dark. The habitat where the birds were seen was lowland wet evergreen forest. The forest, although degraded to some extent due to firewood extraction, had large trees of *Hopea parviflora*, and *Alstonia scholaris*. Some trees were more than 30 m tall. The under storey consisted of *Calamus* spp., *Cassia mimosoides*, and small trees like *Saraca asoca*, and *Ixora spp.*

Ali (1970) describes the range of the species as from northern Kanara to the southern tip of India. Although the range has been extended to Maharashtra (Giri 2002) in the north, no recent records of populations have been known between the state of Kerala, and the district of North Kanara in the state Karnataka. This has led popular field guides to show a gap in distribution between the southern and northern populations (Inskipp *et al.* 1999; Rasmussen & Anderton 2005). The present sighting confirms a population within this area, and suggests a continuous population of the Sri Lanka Frogmouth in habitat patches through the western-central, and south-western regions of Karnataka. The fact that the birds were detected in fairly good numbers further strengthens the argument set forth by Sugathan (1981) after his survey in Kerala, and that of Borges (1986) from North Kanara, Karnataka, that the species is not rare. It is actually locally common wherever favourable habitat exists, even in partially degraded habitats, but evades detection due to its cryptic plumage.

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Pritesh Nandvikar

Sri Lanka Frogmouths *Batrachostomus moniliger* habitat.

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The House Sparrow *Passer domesticus* population of Arakku township, Andhra Pradesh, India

Dhanya R. & P. A. Azeez

Dhanya R., & Azeez, P. A., 2010. The House Sparrow *Passer domesticus* population of Arakku township, Andhra Pradesh, India. *Indian Birds* 5 (6): 180–181.

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Introduction

The House Sparrow *Passer domesticus* is a commensal of human settlements, and it is declining worldwide at an alarming state (Vincent 2005). The Royal Society for the Protection of Birds claims a 62% decline of the species within 25 years (www.rspb.org.uk). The British Trust for Ornithology reports a 56% decline within 40 years. To prompt conservation action for the House Sparrow, it is not included in IUCN's Red List of Threatened Species (BirdLife International 2008). With increase in urbanization the species would not be able to tolerate its rapidly changing habitat as it leaves less natural patches inhabitable for them. Several hypotheses are put forth explaining the disappearance of House Sparrows. Some of them relate to the lack of nesting, feeding, and roosting sites (Anonymous 2008). Electromagnetic radiation and the exhaust of automobiles running on unleaded petrol are also suspected causes (Balmori *et al.* 2007). In India too the phenomenon of sparrow's population decline is reported although the records are anecdotal (Daniels 2008). Moreover, we do not have authentic historical records on the species, to compare its population variations. In view of the anecdotal reports on the decline of House Sparrow we made an attempt to record its population, and associated habitat variables in Arakku township, situated in the Eastern Ghats in Andhra Pradesh (India).

Study area

Arakku valley, located 115 km from Vishakhapatnam (18.33 N 82.87 E) is a small, developing township, and the major business centre in the area. Its population comprises mainly native tribals, and those from other parts of the state who had come, and settled years ago for business and agriculture. The majority of *pukka* buildings here are 20–45 years old, and interspersed by tribal huts, and rarely, very old structures, probably built in colonial times. It is an important tourist destination, being a place of great scenic beauty, and a salubrious climate. In recent years several hotels and resorts have come up here to cater the needs of increasing tourists.

Methods

The bird survey was conducted in May 2007. For this we laid 18 transects of 50 m each (Bibby *et al.* 1998), in different alleys of the township, aiming to cover all available habitats of the species. We recorded information for approximately 5 m distance on either side of the observer. The survey was conducted for 3.30 hrs between 0600 and 0930 hrs. We collected information specific to the species as well as to the habitats. Data on abundance of the species, vegetation, nests, and number of houses, shops, and characteristics of the roofs, open areas, fencings, wells, and water pipes were recorded.

Table 1. The House Sparrow population and the habitat variables

Transects	Sparrow numbers	Houses	Roof type: concrete	shops	vegetation (> 5m)	Roof type: tile	waste grounds	Hotel	Fencing	Roof type: sheet	vegetation (< 5m)	Hut	wells	shutter hood	water pipes
A4	32	8	3	16	6	2	2	4	5	2	11	0	0	0	0
A3	26	5	3	4	7	1	3	3	3	1	15	0	0	0	0
A5	20	5	3	13	3	1	2	3	1	1	0	1	0	10	0
A1	17	18	5	2	4	1	4	0	0	0	1	0	0	3	1
A3	16	1	1	3	3	0	2	3	3	0	0	0	0	0	0
A	12	3	1	15	5	1	0	1	3	1	0	0	0	4	0
A2	12	3	1	16	8	2	1	1	2	0	0	1	0	0	0
A1	9	0	0	28	2	0	0	3	1	0	0	0	0	7	0
A6	9	4	0	9	1	1	1	2	0	3	0	0	0	0	0
A7	9	4	1	15	1	3	0	1	0	0	0	0	0	9	0
A8	9	0	0	12	0	0	0	0	0	0	1	1	1	0	0
A2	5	0	0	14	0	0	0	1	0	0	0	0	0	0	1
A5	0	0	0	1	2	0	0	0	1	0	4	0	0	0	0
A6	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
A4	0	0	0	0	1	0	0	0	0	0	10	0	0	0	0
A11	0	1	0	0	2	0	0	0	0	1	8	0	0	0	0
A9	0	2	0	0	2	1	0	0	1	1	0	0	0	5	2
A10	0	0	0	1	0	0	0	0	0	0	1	0	0	12	0

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Observations & discussions

In total 176 House Sparrows were recorded in the township (Table 1). They were found to be mostly associated with shops and houses. 85% of birds were seen associated with shops, 31% with houses, and 27% with vegetation. Shops, which retail grains and groceries in the conventional manner, are a good source of spill-over food materials. Retailing cereals, and other items pre-packed in plastic bags that cut down spill-over almost completely is yet to pick up in the area. The presence of the species was also associated with vegetation, mainly shrubs and small trees (ht < 5 m). Medium-sized plants are used by sparrows for day and night roosting. Hedges around houses, mostly of live shrubs, and weeds, also supported sparrow population (Donald 2006). Sparrows were also seen near eateries since they offer plenty of food items. They were also seen in waste / open grounds to a lesser extent. The birds were relatively in larger numbers near cement-concrete roofs, than tiled or sheet-type roofs. This probably may be an indirect association, since most of the grocery shops, and the like, had cement-concrete roofs. It is also possible that cement-concrete roofs may offer probably more protection than conventional roofs and more nesting sites in the form of ventilations and holes than other type of roofs. Modern types of cement-concrete buildings with fewer openings are rare in the area. Nevertheless, the number of nests we could locate during the survey was low (two numbers), one located in the hole in a cement concrete roofed house, and another in the metallic corrugated shutter hood of a shop. The low number of active nests, for about a hundred pairs, is not a very encouraging trend for the species' survival.

Conclusion

In Arakku the human settlement offered nesting sites as it is a blend of both old and new constructions. Nevertheless, the number of nests was low. For roosting, house sparrow prefers vegetations like shrubs and small trees (> 5m). Easy availability of food source is also another important reason for association of the species with certain locations. The trend of urbanization, with modern types of buildings and packaging the groceries and cereals in plastic bags leaves fewer chances for the sparrow population in the township.

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On the diet of White-throated Kingfisher *Halcyon smyrnensis*

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On 11 November 2008, at 0830 hrs, I was passing through a trail at Indroda Nature Park, Gandhinagar, (Gujarat), when I came across a very unusual scene. A White-throated Kingfisher *Halcyon smyrnensis* was holding a full-grown Common Iora *Aegithina tiphia* in its beak on the branch of *Cassia fistula*! The site of this action was on the bank of small stream. The event occurred just before my arrival at the scene as the iora was alive, and was trying to free itself from the strong grip of kingfisher's beak. The kingfisher had a very firm grip on the bird, and killed it within 40–50 seconds, and then flew away from the scene with the bird in its beak.

White-throated Kingfishers have been reported feeding on smaller birds earlier. Roberts & Priddy (1965) noticed a bird attacking a group of White-throated Munias *Lonchura malabarica* near Rawalpinidi. Sen (1944) recorded it feeding on an Oriental White-eye *Zosteropus palpebrosus*. Chiku Vora of Surendranagar informed me (*verbally* on 10 April 1984) that he had once observed this kingfisher feeding on a White-browed Fantail-Flycatcher *Rhipidura aureola* at Hanumangala in Gir National Park (Gujarat).

This observation adds the Common Iora to the diet of the White-throated Kingfisher.

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Bird records on an oil exploration vessel off the eastern coast of India

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Kumar, R. S., 2010. Bird records on an oil exploration vessel off the eastern coast of India. *Indian Birds* 5 (6): 182–183.
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As part of a research team from the Wildlife Institute of India I was on board an offshore oil exploration vessel "Discoverer Seven Seas" (DSS) from 7 to 10 May 2007, to look for the presence of olive ridley sea turtle *Lepidochelys olivacea* around the drilling site. At that time, the vessel was located about 60 km from Puri, off the coast of Orissa in the Bay of Bengal, and was drilling at a depth of 1,000 m.

DSS is an ultra-deepwater drilling rig, and with a length of 163 m, and 24 m breadth, one of the largest of its kind. It housed 140 personnel. The vessel chartered to the Oil and Natural Gas Corporation (ONGC) was operating in the area from 25 April 2007, and drilling operations were carried out round the clock. Along with DSS two smaller support vessels were also present at the site. Looking at the wide-open seascape from the helicopter window en route to the ship, I was eagerly expecting to see oceanic birds. However, I could see none there. To my complete surprise I ended up sighting a few birds that I had hardly expected to see on the ship. Here I report these observations.

Arriving on the ship late in the morning of 7 May 2007, we were given a rather long and lengthy session on safety regulations, after which I dashed to the deck, atop the bridge to have a quick view of the seascape. Due to the presence of heavy machinery on the ship, movement of the research team was limited only to the deck at the bow end, and atop the bridge. Considering the nature of work, the ship was equipped with four large thrusters that kept the ship almost still even when waves came pounding at it. Weather was generally good, with clear sky, and a calm sea. There was not a bird in sight during the day, while large schools of yellowfin tuna *Thunnus albacares*, rainbow runner *Elagatis bipinnulata*, and the large and beautiful mahi-mahi or dolphin fish *Coryphaena hippurus*, and few others were observed quietly circling around the ship. Later that night there was a passing thunderstorm with heavy lightening, but by day-break the weather had cleared.

Day two went with no signs of surfacing turtles nor any bird life, and except for the large schools of fish circling around the ship the seascape generally wore a desolate look.

The first signs of birdlife …

On 9 May, at around 0900 hrs, I noticed a small olive brown bird fly past, and disappear, while on my way to the deck. With bated breath I searched around and soon located it moving along the railings by the side of the deck. Looking through my binoculars it was clear that it was a leaf warbler. A little later I found two more leaf warblers and then another, all busy moving up and down along the railings. There appeared to be at least two species, based on size and coloration. Some were larger, and were olive-brown above, pale and dirty white below, showed a single wing bar, a bright supercilium, and blackish legs, while the others were smaller, greener with creamy throat and breast, a bright yellow supercilium, and a single long wing bar; a few of these birds held their tails partly fanned out. The warblers, apart from moving on the railings, and picking up insects, were also observed hovering and catching insects. One bird was observed hawking insects, and drinking water from the air-conditioner's exhaust collection tray. They appeared to be Large-billed *Phylloscopus magnirostris*, and Greenish *P. trochiloides* Leaf-Warblers. The birds appeared tame and often came within touching distance, and also appeared totally unaffected by the loud creaking and rattling noises of the machinery in operation. They were frantically feeding on some insects that were attracted possibly by the large lights on the ship. One of the leaf-warblers was seen flying west, out from the ship, and flying very close to the water's surface.

Following the sighting of the leaf-warblers, a pair of Blyth's Reed-Warbler *Acrocephalus dumetorum*, and a lone pipit [Motacillidae] was also spotted moving on the deck, and feeding. The pipit was identified as a Paddyfield Pipit *Anthus rufulus* based on the heavy streaking from crown to back, with streaks on the breast; its throat, belly, and vent were pinkish-white; it showed one small pale wing bar, and a clear supercilium. Later, at around 1400 hrs, at the sudden noise of heavy drill equipment being moved, I noticed a medium sized dark brown bird with its legs trailing behind fly out from the ship. Flying close to the water it made a quick, short semicircular flight, returning to land on the ship, and disappearing among the machinery. Scanning the area I noticed the bird repeat this maneuver after a while. It was a White-breasted Waterhen *Amaurornis phoenicurus*, a complete surprise to me! After couple of hours, three White-breasted Waterhens were seen flying out from the ship, and then landing back after a short flight. 'Why would a waterhen be there out in the middle of the sea?' kept ringing in my mind. Just at that time a couple of swifts [Apodidae] that could not be clearly identified were spotted flying over the vessel; they soon disappeared. Excited by the growing number of birds on the ship, my senses were becoming sharper given the likelihood of spotting more birds, while on the other hand I continued to look out for surfacing turtles.

Later that evening I was back on deck atop the bridge. The large industrial lights on the ship had been switched on, and there was a busy buzz of insects around them. The pipit was still there, and while focusing on it I suddenly noticed a movement at the bow end, close to the enormously large-sized chains that held the anchors of the ship. Focusing at the spot, I saw, to my disbelief, a Slaty-breasted Rail *Rallus striatus* sitting besides the chain, preening. Yet another surprise to me; birds that I thought were poor fliers were out there on the ship. Looking at the rail, preening intensively, and ruffling its feathers every now and then, it appeared as if it had stopped on the ship after a long flight from somewhere, across the sea. After nearly an hour of preening and ruffling the rail started to move on the deck and then went out of view a little later. The pipit was on a non-stop feeding frenzy and was observed later that night at 2230 hrs moving around the deck picking up insects.

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More visitors ...

On day four, being the last day on the ship, I was up early and was scanning the vast open seascape hoping to see pelagic birds. The many leaf-warblers seen the previous day appeared to have gone except for a lone Greenish Leaf-Warbler that was still on deck. There was neither any sign of the rail nor the waterhens; maybe they were still there among the heavy machinery at the rear end of the ship. The pipit was still there. There now appeared to be another pipit, though slightly larger, and paler, but could not identify it. At around 0800 hrs a very familiar-looking bird flew out from the side of the ship. It was the Indian Pond Heron *Ardeola grayii*, yet another bird to the list of surprises. However, that was not all, a little later I heard screeching calls coming from atop a tall pole near the deck. A Brown Shrike *Lanius cristatus*! There were two others around, and one of them looked like *L. c. lucionensis*. Following this, and in the midst of the bird sightings, I managed to spot a single olive ridley sea turtle surface at 0840 hrs, and about 200 m from the ship. The turtle appeared coming from the west, from the direction of the Orissa coastline, and was likely on its post breeding migration. While the turtle was going south I wondered where the birds seen on the ship were heading, whether they were going south or were they on their way north. The leaf-warblers, reed-warbler, Brown Shrike were definitely heading north for they are winter visitors to the Indian Subcontinent. While, the direction the Pond Heron, White-breasted Waterhen, Slaty-breasted Rail, Paddyfield Pipit were heading in is a mystery, for they are widespread residents of the Indian Subcontinent.

Later that afternoon, while waiting for the chopper to arrive for my return to the mainland, I spotted a yellow-coloured bird at around 1540 hrs, flying up from the ship and perching on top of a tall pole. As if the list of surprises was not enough, here was yet another addition—a male Black-naped Oriole *Oriolus chinensis*, a resident of the Andaman and Nicobar Islands, and a winter visitor to the mainland.

From the number of birds recorded on the ship it appeared that the ship was an important refueling point for them. I still wonder why terrestrial birds would fly 100 km into the Bay of Bengal, away from the mainland, or nearly 900 km from the northern part of the Andaman & Nicobar Islands, the closest landmass in the eastward direction. In March 2007, during offshore surveys for olive ridley turtles, closer to the Orissa coast, I came across a Common Hoopoe *Upupa epops* nearly 5 km out at sea. The bird was flying low and heading landward. Why would a slow flier such as the Hoopoe fly out to sea at all? And from where exactly this bird had set out may never be known.

Soon the chopper arrived and I was on my way back. Looking through the window at the open waters of the Bay of Bengal, I wondered at the indomitable spirit of the birds that cross such vast open seascapes en route to their breeding and wintering grounds every year.

New easterly locations of Impeyan Monal *Lophophorus impejanus* from Arunachal Pradesh

Anwaruddin Choudhury

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Impeyan Monal *Lophophorus impejanus* is a fairly common galliform distributed in the Himalaya, from Kashmir to Arunachal Pradesh (Ali & Ripley 1987; Sathyakumar & Kaul 2007). In Arunachal Pradesh, it is known from two disjunct locations, western areas in Tawang and West Kameng districts, and in the east, in the Dibang valley, and Lower Dibang valley districts (Choudhury 2006). The 'gap' area in Arunachal Pradesh may not be so but for the paucity of field works in remote mountains of upper areas of Siang and Subansiri basins (Choudhury 2008). The maps in Grimmett *et al.* (1998), Kazmierczak (2000), Choudhury (2006), and Sathyakumar & Kaul (2007) also largely showed the same general area for the species. Here I report of new easterly locations, some very close to the India–Myanmar border.

While on a field trip to Anjaw district in eastern Arunachal Pradesh in December 2008, I observed evidences of Impeyan, and Sclater's *L. sclateri* Monal at a number of places. These were mostly in the form of feathers, tail, and crest—all very distinctly characteristic of the species. Since both are sympatric in the area, these features help segregate them. The local villagers, especially the hunters, are familiar with these species, and have assigned different names to them.

Both the monal spp., were recorded near Chaglagam (28°18'N 96°33'E), Walong (28°08'N 97°01'E), and Kibithu (28°18'N 97°01'E). At Walong, Dong, Kharoti, and Kibithu, hunters reported that they shot both species from both sides of the Lohit River. In all these places the birds were shot from the higher elevation areas nearby. Shooting, and trapping with snares, mostly take place in winter when the monal descend to lower altitudes, owing to snowfall in higher elevations. These records have extended the known eastern range of Impeyan Monal in India from 96°15'E to 97°20'E up to the India–Myanmar border (Fig. 1). In case of Sclater's Monal, the range has already been extended recently (Choudhury 2006).

There is a historic record of Impeyan Monal from northern Myanmar (King *et al.* 1975). A major conservation issue in Walong–Kibithu area seemed to be the Myanmarese poachers who regularly snared, and shot monal alongwith other species in Dichu reserved forest. These foreign poachers need to be apprehended, perhaps with the help of the paramilitary forces, and the army—as the area involved is located near the international boundary.

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Crest of Impeyan Monal *Lophophorus impejanus* is often kept as decoration item by hunters or other locals. One is seen here fixed on a red goral *Naemorhedus baileyi* head at Walong.

Tail of Impeyan Monal *Lophophorus impejanus* with that of a Kaleej Pheasant *Lophura leucomelanos* and skin of a leopard cat *Prionailurus bengalensis* in a house at Walong.

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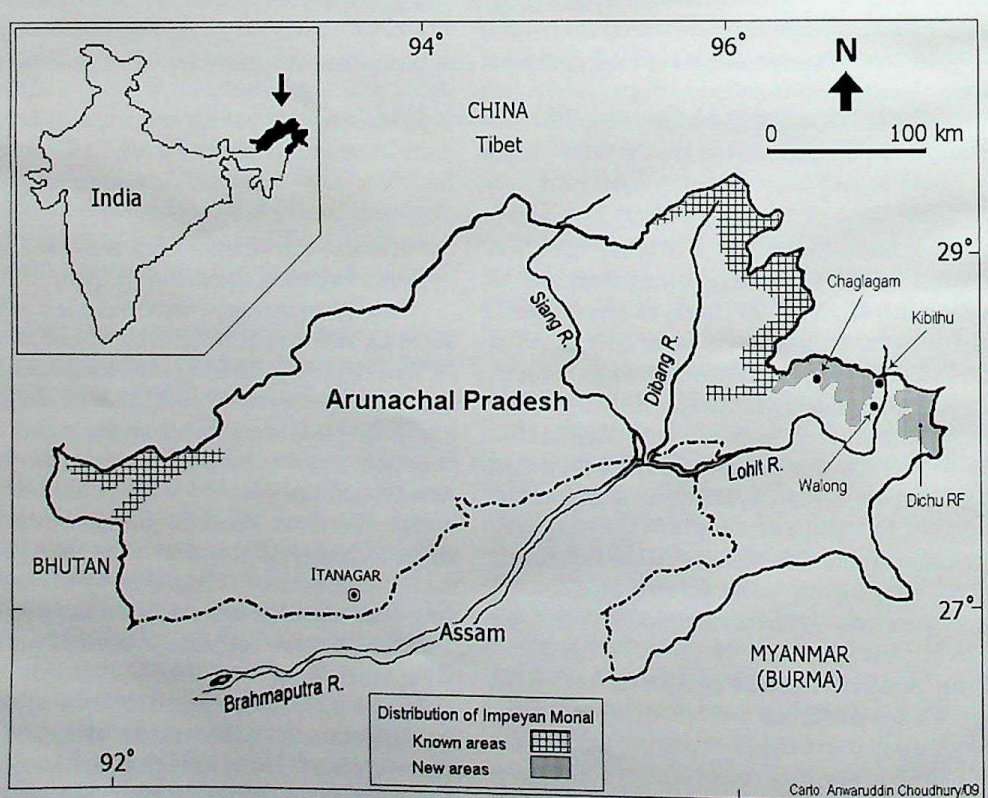

Fig. 1. Map of Arunachal Pradesh showing the range of Impeyan Monal *Lophophorus impejanus*.

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Recent sightings of Chinese Pond-Heron *Ardeola bacchus* in Assam

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The Chinese Pond-Heron *Ardeola bacchus* is a rare species in India. It has been recorded as an uncommon resident in Assam (Choudhury 2000). There are only a handful of records from the region, all from north-eastern India, and Bangladesh (Kazmierczak 2000). Ali & Ripley (1987) mentioned that it is a breeding resident in eastern Assam, and that it also occurs in Manipur, and the Andaman Islands. Grimmett *et al.* (1998) stated that it might partly be a winter visitor too. The species is almost impossible to identify in its non-breeding plumage, due to its resemblance with the commoner, and widespread Indian Pond-Heron *A. grayii*. Here I report two recent observations of the Chinese Pond-Heron from Assam.

The first observation was of a lone bird standing in a field near Tingrai (27 28'N 95 34'E) in Tinsukia district in extreme eastern Assam on 18 May 1993. The site was *c.*10 km from Tinsukia town. The elevation of the site was about 125 m a.s.l. It could be easily identified as it was in breeding plumage. The second observation was made in Cachar district of far southern Assam. While coming back from Hailakandi in southern Assam to Guwahati, I saw one in breeding plumage in a wet field by the side of NH44 between Hilara and Kalain (24 57'N 92 35'E) at about 1020 hrs on 1 May 2008. The elevation of the site was about 30 m a.s.l. The location was about 15 km north-west of Badarpur town. From a distance of about 25–30 m, I could easily see its rich maroon-chestnut head and neck. I further observed it with the aid of a pair of 10x binoculars to have a closer look at its other plumage including slaty-black mantle and scapulars. I took a few photographs before it flew away to another location, about 30 m away. I passed through the same area again in June and July 2008, and looked around for the bird but could not find. This second observation was significant, being from southern Assam, as Ali & Ripley (1987) had mentioned of its occurrence in eastern Assam only.

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A Chinese Pond-Heron *Ardeola bacchus* in Cachar district, southern Assam.

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Photo-essay: a Snow Partridge *Lerwa lerwa* experience

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On 1 January 2010, my wife Raka, Sanjay Sondhi, and I set off on a seven kilometer trek in one of the most promising birding areas of the Garhwal Himalayas, often visited by us earlier, the Kedarnath Musk Deer Reserve (Rudraprayag district, Uttarakhand, India). That day our route started from Chopta (3,000 m), via Tunganath temple (3,700 m), going up to the Chandrashila peak (4,000 m). We spotted the usual birds: Himalayan Monal *Lophophorus impejanus*, Altai Accentors *Prunella himalayana*, Eurasian Sparrowhawk, *Accipiter nisus*, and Lammergeier *Gypaetus barbatus*, but had no luck with the rarities we wished to see.

While returning to Chopta, at noon, the cloudy weather suddenly became chilly, as it started raining, followed by snow. We took refuge in a small rain shelter just 200 m below Tunganath temple. We unfurled umbrellas, and were planning to put our cameras back into our rucksacks when suddenly Raka noticed, from a distance, what she believed to be Himalayan Monal, coming on to the stony trail, from the steep grassy slopes below. My binoculars soon revealed, to our utter delight and surprise, that it was a covey of Snow Partridges *Lerwa lerwa*, just what we had searched for all day on these mountain slopes! The birds moved ahead slowly into tufts of grass. While Raka watched and I quietly approached them on my knees, Sanjay, who was left behind, wondered from a distance what was going on, but he quickly assessed the situation and followed. My camera clicked every move these birds made. With the leader marching ahead, the covey moved slowly, and steadily in the snow. Suddenly, I realized that the birds had stopped moving, and all the individuals had crouched on the ground, in identical postures, while looking up at the sky. I too turned, and saw a juvenile Golden Eagle *Aquila chrysaetos* circling just above us; an adult of the same species circled close to it. Alarmed by these predators the partridges cowered motionlessly. Their vermiculated dark brown and black backs were perfectly camouflaged in the dry grass and snow around them. As the eagles circled closer, the partridges responded by slowly turning their head and body synchronously with the eagles. This gave me enough time to move closer to these birds, which had by this time accepted my presence. Soon the raptors lost interest and moved away.

Gradually the birds stood up, first the leader and then the rest, and started foraging while moving up the slope, away from me. I followed them. I realized that the leader remained more vigilant to the threat of the eagles, than to my presence. Finally the group came close to a point from where the entire valley was visible below. Just then one of the open umbrellas that was placed hurriedly on the stony trial, blew a few meters in front of a small gust of wind, and scared the entire flock. The leader took off first, followed by the party, all gently gliding down the vale, and melting into in the *Rhododendron companulatum* shrubberies half a kilometer below us. We returned to Chopta after this unique sighting, having forgotten all the tiredness and chill of the trek.

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Fig. 1. Landscape of our Snow Partridge experience.

Fig. 2. A covey of four Snow Partridges *Lerwa lerwa* emerged on to the stony trail.

Fig. 3. Suddenly they froze in their path …

Fig. 4. … and hunkered down to merge perfectly with their surroundings.

Fig. 5. A juvenile Golden Eagle *Aquila chrysaetos* circled over the covey.

Fig. 6. The leader of the covey glanced up at the predator …

Fig. 7. Covey members behaved just as their leader did …

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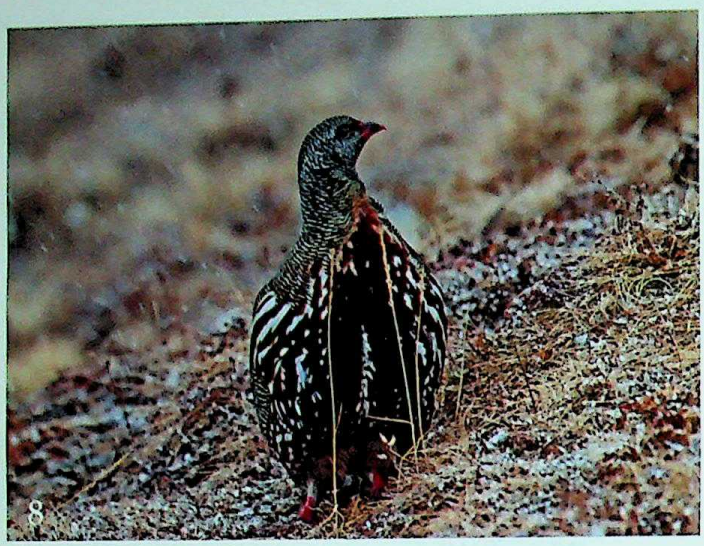

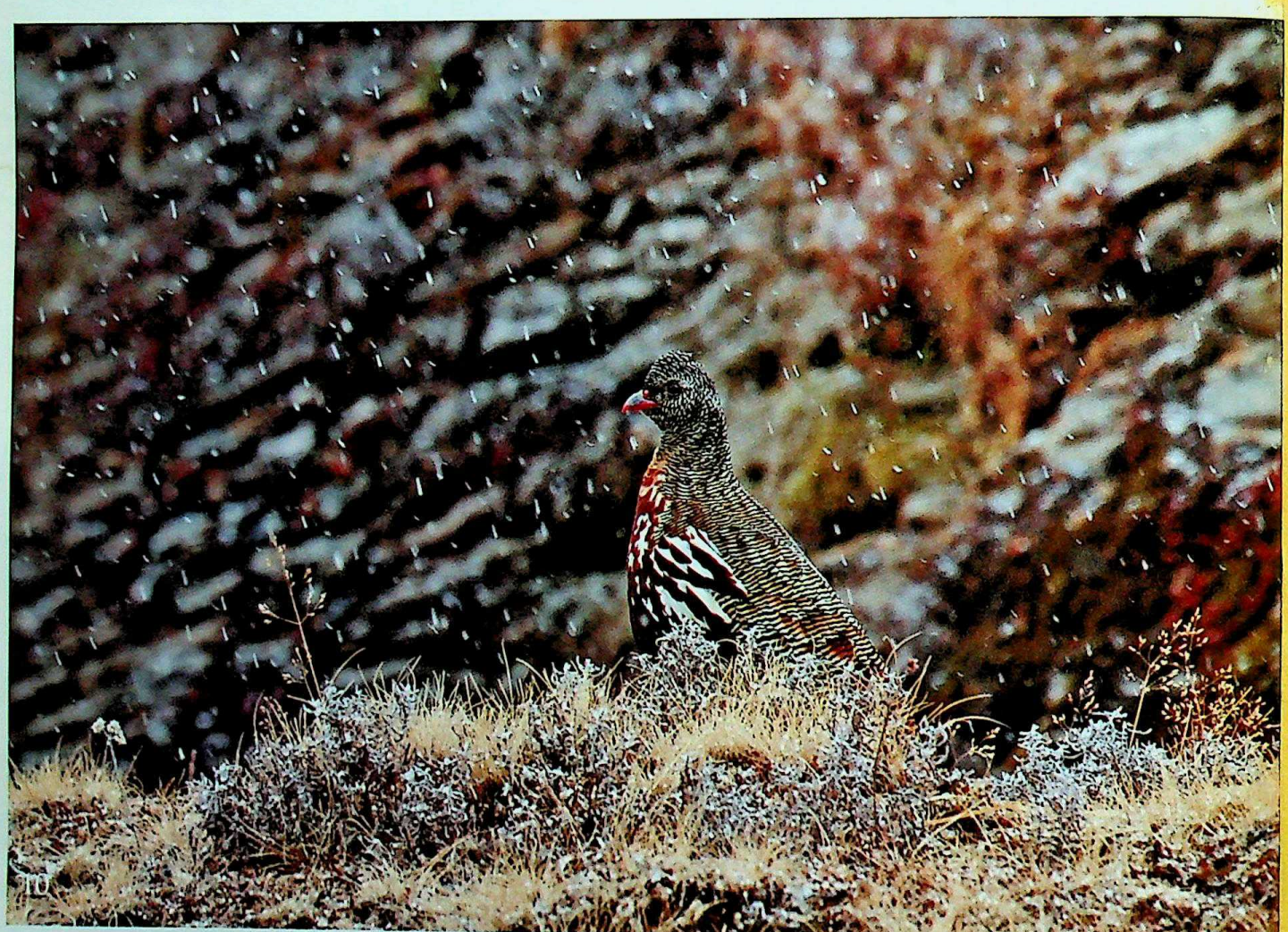

Fig. 8. As the threat moved away, the leader relaxed …

Fig. 9. … and the covey began feeding tentatively.

Fig. 10. In the tense moments, the leader ignored me, concentrating entirely on the eagles.

Fig. 11. The covey took off down into the valley.

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